JVC

SERVICE MANUAL

Hi-Fi STEREO VIDEO CASSETTE RECORDER

HR-D910U/D920U/D930U

SPECIFICATIONS *(The specifications shown pertain specifically to the model HR-D930U)*

GENERAL

Power requirement : AC 120 V∿, 60 Hz
Power consumption : 24 W
Temperature
Operating : 5°C to 40°C (41°F to 104°F)
Storage : –20°C to 60°C (–4°F to 140°F)
Humidity
Operating : 35% to 80%
Storage : 5% to 80%
Operating position : Horizontal only
Dimensions (WxHxD) : 435 x 94 x 335 mm (17-3/16" x 3-3/4" x 13-1/4")
Weight : 5.2 kg (11.5 lbs)
Format : VHS NTSC standard with Hi-Fi audio
Tape width : 12.65 mm
Tape speed (SP) : 33.35 mm/sec (1-5/16 ips)
(EP) : 11.12 mm/sec (7/16 ips)
Maximum recording time (SP) : 160 min. with T-160 video cassette
(EP) : 480 min. with T-160 video cassette

VIDEO

Signal system : NTSC-type color signal and EIA monochrome signal, 525 lines/60 fields
Recording system : Rotary two-head helical scan system with slant double-azimuth combination video heads
Input : 0.5 to 2.0 Vp-p, 75 ohms, unbalanced
Output : 1.0 Vp-p, 75 ohms, unbalanced
Signal-to-noise ratio : 45 dB (Rohde & Schwarz noise meter) with PICTURE CONTROL set to OFF
Horizontal resolution : 240 lines

AUDIO

Input : –8 dBs, more than 50 k-ohms, unbalanced
Output : –8 dBs, less than 1 k-ohm, unbalanced (100 k-ohms, load)

NORMAL AUDIO

Recording system : Longitudinal track
No. of channels : 1 normal audio channel
Frequency response : 70 Hz to 10,000 Hz

Hi-Fi AUDIO

Recording system : Deep-layer recording system conforming to stereo Hi-Fi VHS standard
No. of channels : 2 Hi-Fi audio channels
Frequency response : 20 Hz to 20,000 Hz
Dynamic range : More than 90 dB
Wow and flutter : Less than 0.005% WRMS

TUNER

Tuning system : Frequency synthesized tuner
Channel coverage
(VHF) : Channels 2–13
(UHF) : Channels 14–69
(CATV) : 113 Channels
RF output : Channel 3 or 4 (switchable; preset to Channel 3 when shipped) 75 ohms, unbalanced

TIMER

Clock reference : Quartz-crystal
Program capacity : 1-year programmable timer/8-programs

ACCESSORIES

Provided accessories : RF cable (F-type), Infrared remote control unit, "AAA" battery x 2

E. & O.E. Specifications shown are for SP mode unless otherwise specified.
Design and specifications subject to change without notice.

COPYRIGHT © 1991 VICTOR COMPANY OF JAPAN, LTD.

No. 82244
April 1991

NOTE: For a technical description, please refer to Technical Guide VTG82066 HR-D910/D920/D930 NTSC.

TABLE OF CONTENTS

Section **Title** **Page**

Important Safety Precautions

INSTRUCTIONS

1. DISASSEMBLY AND MECHANISM ADJUSTMENTS

- 1.1 DISASSEMBLY 1 - 1
  - 1.1.1 Top cover 1 - 1
  - 1.1.2 Front panel assembly 1 - 1
  - 1.1.3 Bottom cover 1 - 1
  - 1.1.4 Main board assembly 1 - 1
  - 1.1.5 Cassette housing 1 - 2
  - 1.1.6 Cassette housing installation 1 - 2
  - 1.1.7 Cassette housing door 1 - 3
  - 1.1.8 Main-deck 1 - 3
  - 1.1.9 Video unit board assembly 1 - 3
  - 1.1.10 Switching regulator board assembly 1 - 3
- 1.2 MECHANISM ADJUSTMENTS 1 - 4
  - 1.2.1 Precautions 1 - 4
  - 1.2.2 Check without cassette housing 1 - 4
  - 1.2.3 Manually removing cassette tape 1 - 4
  - 1.2.4 Test equipment 1 - 4
- 1.3 MAIN MECHANISM PARTS 1 - 5
- 1.4 INSPECTION AND MAINTENANCE 1 - 7
  - 1.4.1 Suggested servicing schedule for main components 1 - 7
- 1.5 MAIN PARTS REMOVLA AND REPLACEMENT 1 - 8

2. ELECTRICAL ADJUSTMENTS

- 2.1 PREPARATION 2 - 1
  - 2.1.1 Required test equipment 2 - 1
  - 2.1.2 Check and adjustment steps 2 - 2
  - 2.1.3 Confirmation 2 - 2
- 2.2 SWITCHING REGULATOR CIRCUIT 2 - 3
- 2.3 SERVO CIRCUIT 2 - 3
- 2.4 VIDEO CIRCUIT 2 - 5
- 2.5 AUDIO CIRCUIT 2 - 8
- 2.6 TIMER CIRCUIT 2 - 8
- 2.7 TUNER/IF CIRCUIT 2 - 9
- 2.8 ON SCREEN CIRCUIT 2-10

3. CHARTS AND DIAGRAMS

- 3.1 CIRCUIT BOARD AND LOCATION 3 - 1
- 3.2 GENERAL INFORMATION 3 - 2
  - 3.2.1 Connections 3 - 2
  - 3.2.2 Disconnecting the flatwire 3 - 2
  - 3.2.3 Indications 3 - 2
  - 3.2.4 Schematic diagram values 3 - 2
  - 3.2.5 Signal flow in the schematic 3 - 2
  - 3.2.6 Basic knowledge of SMC* parts replacement 3 - 3
  - 3.2.7 Semiconductors 3 - 4
- 3.3 ABBREVIATIONS USED IN THE SCHEMATIC DIAGRAMS 3 - 5
- 3.4 BOARD INTERCONNECTIONS 3 - 7
- 3.5 SWITCHING REGULATOR BLOCK DIAGRAM 3 - 9
- 3.6 SERVO BLOCK DIAGRAM 3-11
- 3.7 SYSTEM CONTROL BLOCK DIAGRAM 3-13
- 3.8 TUNER IF AND DEMODULATOR BLOCK DIAGRAMS 3-15
- 3.9 VIDEO & VIDEO UNIT BLOCK DIAGRAM 3-17
- 3.10 AUDIO & AUDIO UNIT BLOCK DIAGRAM 3-19
- 3.11 TIMER/DISPLAY/SW BLOCK DIAGRAM 3-23
- 3.12 PRE/REC BLOCK DIAGRAM 3-25
- 3.13 SWITCHING REGULATOR AND MAIN(REGULATOR) SCHEMATIC DIAGRAM 3-27
- 3.14 SWITCHING REGULATOR CIRCUIT BOARD 3-29
- 3.15 MAIN (SERVO), SERVO SUB SCHEMATIC DIAGRAMS 3-31
- 3.16 MAIN (SERVO), SERVO SUB CIRCUIT BOARDS 3-33
- 3.17 MAIN (MECHACON) SCHEMATIC DIAGRAM 3-35
- 3.18 MAIN (MECHACON) CIRCUIT BOARD 3-37
- 3.19 DECK TERMINAL, MODE MOTOR, CAPSTAN MDA AND CASS. HOUSING SCHEMATIC DIAGRAMS 3-39
- 3.20 DECK TERMINAL, LOADING MDA, CASS. HOUSING AND A/CTL HEAD CIRCUIT BOARDS 3-40
- 3.21 MAIN CIRCUIT BOARD 3-41
- 3.22 MAIN (TUNER/IF) SCHEMATIC DIAGRAMS 3-43
- 3.23 MAIN (TUNER/IF) CIRCUIT BOARD 3-45
- 3.24 DEMODULATOR SCHEMATIC DIAGRAM 3-47
- 3.25 DEMODULATOR CIRCUIT BOARDS 3-49
- 3.26 ON SCREEN SCHEMATIC DIAGRAM 3-51
- 3.27 ON SCREEN CIRCUIT BOARD 3-53
- 3.28 MAIN (VIDEO), VIDEO UNIT SCHEMATIC DIAGRAM 3-55
- 3.29 MAIN (VIDEO) CIRCUIT BOARD 3-57
- 3.30 VIDEO UNIT CIRCUIT BOARD 3-57
- 3.31 MAIN (AUDIO), AUDIO UNIT SCHEMATIC DIAGRAM 3-60
- 3.32 MAIN (AUDIO), AUDIO UNIT CIRCUIT BOARDS 3-63
- 3.33 FMA PRE/REC SCHEMATIC DIAGRAMS 3-66
- 3.34 PRE/REC CIRCUIT BOARDS 3-69
- 3.35 TIMER/DISPLAY/SWITCH SCHEMATIC DIAGRAM 3-71
- 3.36 TIMER/DISPLAY/SWITCH SCHEMATIC DIAGRAM 3-73
- 3.37 REMOTE CONTROL SCHEMATIC DIAGRAM 3-75
- 3.38 RF CONVERTER/SWITCH SCHEMATIC DIAGRAM 3-76

4. EXPLODED VIEWS AND PARTS LIST

- 4.1 PACKING ASSEMBLY <M1> 4 - 1
- 4.2 CABINET ASSEMBLY <M2> 4 - 2
- 4.3 CHASSIS ASSEMBLY <M3> 4 - 3
- 4.4 MECHANISM ASSEMBLY <M4> 4 - 4

5. ELECTRICAL PARTS LIST

- SWITCHING REGULATOR BOARD ASSEMBLY <01> 5 - 1
- MAIN BOARD ASSEMBLY <03> 5 - 3
- VIDEO UNIT BOARD ASSEMBLY <05> 5 - 9
- AUDIO UNIT BOARD ASSEMBLY <09> 5-11
- A/C HEAD BOARD ASSEMBLY <12> 5-13
- DEMODULATOR BOARD ASSEMBLY <14> 5-14
- ON SCREEN BOARD ASSEMBLY <17> 5-14
- TIMER/DISP/SW BOARD ASSEMBLY <21> 5-15
- UPPER DRUM BOARD <41> 5-17
- PRE/REC AMP BOARD ASSEMBLY <43> 5-17
- DECK TERMINAL BOARD ASSEMBLY <51> 5-18
- LOADING MDA BOARD ASSEMBLY <55> 5-19
- CASSETTE HOUSING BOARD <56> 5-19
- SERVO SUB BOARD ASSEMBLY <83> 5-19

6. TECHNICAL INFORMATIONS

- 6.1 CPU PIN FUNCTIONS 6 - 1

The following table lists the differing points between models (HR-D930U, HR-D920U/U(C) and HR-D910U/U(C) in this series

MODEL / ITEM	[4 HEADS] HR-D930U	[4 HEADS] HR-D920U	[4 HEADS] HR-D920U (CANADA)	[4 HEADS] HR-D910U	[4 HEADS] HR-D910U (CANADA)
FRONT PANEL color	Metallic gray	Metallic dull silver	← *1)	Metallic dark gray	← *1)
FDP color	Yellow	Amber	← *1)	Yellow	← *1)
TOP COVER color	Metallic gray	← *1)	← *1)	Metallic dark gray	← *1)

Note: *1) ← The same as model as left.

Important Safety Precautions

Prior to shipment from the factory, JVC products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

●Precautions during Servicing

1. Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.

2. Parts identified by the ⚠ symbol and shaded (▒) parts are critical for safety.
   Replace only with specified part numbers.
   Note: Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.

3. Fuse replacement caution notice.
   Caution for continued protection against fire hazard.
   Replace only with same type and rated fuse(s) as specified.

4. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads

5. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers
   4) Insulation sheets for transistors
   5) Barrier

6. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.

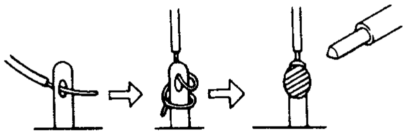


Fig. 1

7. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)

8. Check that replaced wires do not contact sharp edged or pointed parts.

9. When a power cord has been replaced, check that 10–15 kg of force in any direction will not loosen it.

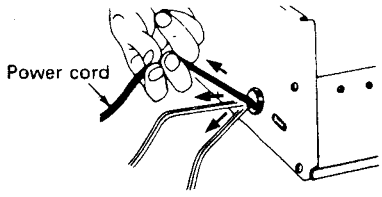


Fig. 2

10. Also check areas surrounding repaired locations.

11. Products using cathode ray tubes (CRTs)
    In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the specified parts. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

12. Crimp type wire connector
    In such cases as when replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, if replacing the connectors is unavoidable, in order to prevent safety hazards, perform carefully and precisely according to the following steps.
    1) **Connector part number** : E03830-001
    2) **Required tool** : Connector crimping tool of the proper type which will not damage insulated parts.
    3) **Replacement procedure**
       (1) Remove the old connector by cutting the wires at a point close to the connector.
       Important : Do not reuse a connector (discard it).

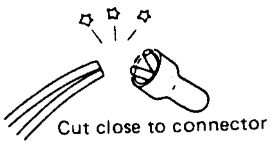


Fig. 3

(2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

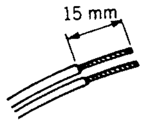


Fig. 4

(3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

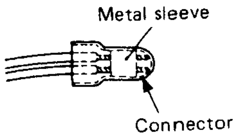


Fig. 5

(4) As shown in Fig. 6, use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

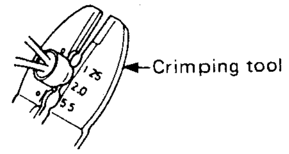


Fig. 6

(5) Check the four points noted in Fig. 7.

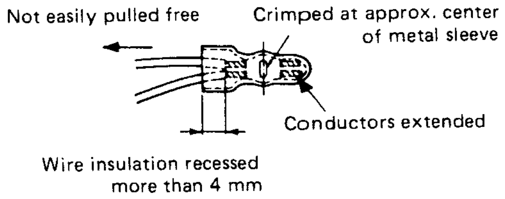

Not easily pulled free
Crimped at approx. center of metal sleeve
Conductors extended
Wire insulation recessed more than 4 mm

Fig. 7

● Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions, Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. **Insulation resistance test**
   Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

2. **Dielectric strength test**
   Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

3. **Clearance distance**
   When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table 1 below.

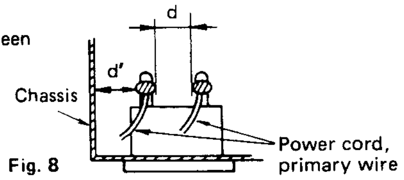


Fig. 8

4. **Leakage current test**
   Confirm specified or lower leakage current between earth ground/power cord plug prongs and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).
   Measuring Method: (Power ON)
   Insert load Z between earth ground/power cord plug prongs and externally exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure 9 and following table 2.

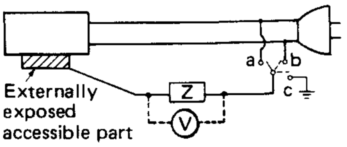


Fig. 9

5. **Grounding (Class I model only)**
   Confirm specified or lower grounding impedance between earth pin in AC inlet and externally exposed accessible parts (Video in, Video out, Audio in, Audio out or Fixing screw etc.).
   Measuring Method:
   Connect milli ohm meter between earth pin in AC inlet and exposed accessible parts. See figure 10 and grounding specifications.

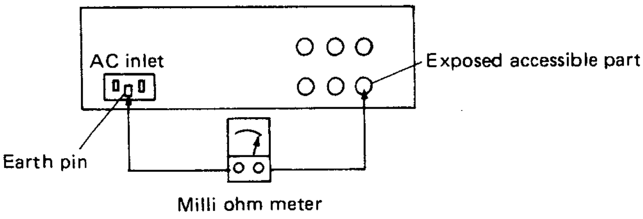


Fig. 10

Grounding Specifications

Region	Grounding Impedance (Z)
USA & Canada	Z ≦ 0.1 ohm
Europe & Australia	Z ≦ 0.5 ohm

AC Line Voltage	Region	Insulation Resistance (R)	Dielectric Strength	Clearance Distance (d), (d')
100 V	Japan	R ≧ 1 MΩ/500 V DC	AC 1 kV 1 minute	d, d' ≧ 3 mm
100 to 240 V			AC 1.5 kV 1 minute	d, d' ≧ 4 mm
110 to 130 V	USA & Canada	–	AC 900 V 1 minute	d, d' ≧ 3.2 mm
110 to 130 V 200 to 240 V	Europe & Australia	R ≧ 10 MΩ /500 V DC	AC 3 kV 1 minute (Class II) AC 1.5 kV 1 minute (Class I)	d ≧ 4 mm d' ≧ 8 mm (Power cord) d' ≧ 6 mm (Primary wire)

Table 1 Specifications for each region

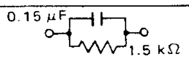
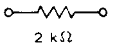
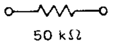
AC Line Voltage	Region	Load Z	Leakage Current (i)	a, b, c
100 V	Japan	1 kΩ	i ≦ 1 mA rms	Exposed accessible parts
110 to 130 V	USA & Canada	 0.15 µF 1.5 kΩ	i ≦ 0.5 mA rms	Exposed accessible parts
110 to 130 V 220 to 240 V	Europe & Australia	 2 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Antenna earth terminals
		 50 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Other terminals

Table 2 Leakage current specifications for each region

Note: These tables are unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

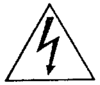
INSTRUCTIONS

Safety Precautions

CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK.
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Note to CATV system installer:
This reminder is provided to call the CATV system installer's attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

WARNING:
TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

This video cassette recorder should be used with AC 120V∿, 60 Hz only.
CAUTION:
To prevent electric shocks and fire hazards, do NOT use any other power source.

VHS HQ

- Cassettes marked "VHS" (or "S-VHS") can be used with this video cassette recorder.
- HQ VHS is compatible with existing VHS equipment.

When you are not using the video recorder for a long period of time, it is recommended that you disconnect the power cord from the AC outlet.

CAUTION:
TO PREVENT ELECTRIC SHOCK, MATCH WIDE BLADE OF PLUG TO WIDE SLOT, FULLY INSERT.

ATTENTION:
Pour éviter les chocs électriques, introduire la lame la plus large de la fiche dans la borne correspondante de la prise et pousser jusqu'au fond.

NOTE:
The rating plate and the safety caution are on the side and rear of the unit.

CAUTION:
Changes or modifications not approved by JVC could void user's authority to operate the equipment.

Contents

Controls, Indicators, And Connectors 3
Getting To Know Your VCR 5

Getting Started With Your VCR

Making The Right Connections 7
Handling Videocassettes 8
Setting The Clock 9
Setting The Tuner 10

Basic Operation With Your VCR

Playback 11
Recording 12
Timer-Recording 13
Mode Displays — What They Mean 15

Customizing Your VCR

On-Screen VCR Set Up 16
On-Screen Tuner Set Up 17

Advanced Functions On Your VCR

For Playback 19
For Tape Access 22
For Recording 23
For Timer-Recording 25
For Editing 28

List Of VCR Display Panel Messages 29
Helpful Terms And Information 30
Precautions 31
Specifications 32
In Case Of Difficulties 33
Special Note On Head Cleaning 34

How To Use This Instruction Manual

This instruction manual has been designed with both new and experienced users in mind. The first half offers detailed, step-by-step instructions for setting up your VCR, and on using its basic functions. The second half provides instructions on the many other functions available on your VCR. So just by following the instructions in the "Getting Started" and "Basic Operation" sections of this manual, you can master all of your VCR's basic functions, including timer-recording. Once you're sufficiently familiar with basic operation, or if you're already an experienced video user, you can move on to the more advanced functions introduced on the following pages. Also, towards the end of this instruction manual, there are sections offering supplemental information which you should find helpful in the course of operating your VCR.

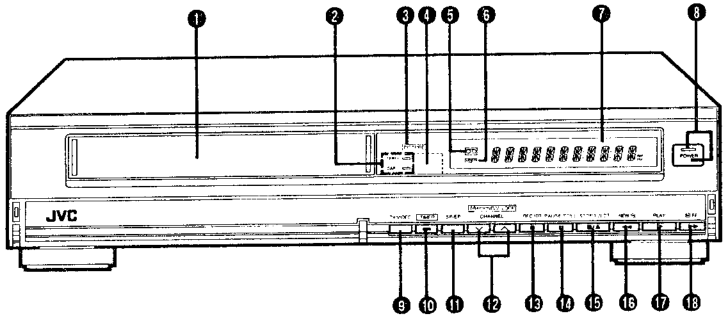
Related features have all been clustered together for easy reference, and their categories (playback, recording, timer, etc.) are easily recognizable by the symbol appearing in the page header. If you ever need to refer to another page for instructions or information, you will be told so by a ☞ mark pointing to the page number. Unless otherwise specified, operation buttons mentioned in the instructions refer to those located on the remote control, not those duplicated on the VCR.

Remember, you must use your VCR correctly to fully enjoy it. Please use this manual effectively. It's the surest and quickest way to unlock the full potential of your new JVC VCR.

COPYRIGHT © 1991 VICTOR COMPANY OF JAPAN, LTD.

Controls, Indicators, And Connectors

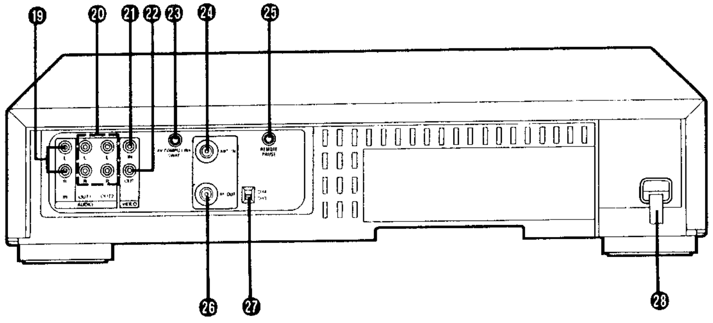
Front Panel



❶
❷
❸❹❺
❻
❼
❽
JVC
❾ ❿ ⓫ ⓬ ⓭ ⓮ ⓯ ⓰ ⓱ ⓲

- ❶ Cassette loading slot
- ❷ Multichannel TV Sound indicators ☞p.24
- ❸ PICTURE CONTROL indicator ☞p.21
- ❹ Infrared beam receiving window
- ❺ "Cassette loaded" indicator
- ❻ VIDEO mode indicator
- ❼ Message display panel ☞p.15, 29
- ❽ POWER button with LED indicator
- ❾ TV/VIDEO button
- ❿ TIMER button
- ⓫ SP/EP button
- ⓬ TRACKING/V.LOCK/ CHANNEL(UP/DOWN) buttons
- ⓭ REC/ITR button ☞p.23
- ⓮ PAUSE/STILL button
- ⓯ STOP/EJECT button
- ⓰ REW (Rewind) button
- ⓱ PLAY button
- ⓲ FF (Fast Forward) button

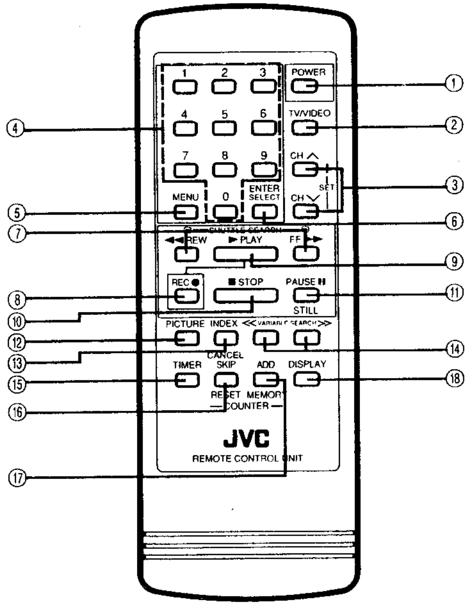
Back Panel



⓳
⓴
㉑㉒㉓
㉔
㉕
㉖
㉗
㉘

- ⓳ AUDIO IN connectors
- ⓴ AUDIO OUT 1/2 connectors
- ㉑ VIDEO IN connector
- ㉒ VIDEO OUT connector
- ㉓ AV COMPU LINK/SWAP connector ☞P.21, 28
- ㉔ ANTENNA IN terminal
- ㉕ REMOTE PAUSE terminal ☞p.28
- ㉖ RF OUT terminal
- ㉗ RF output channel select switch ☞p.7
- ㉘ Power cord

Wireless Remote Control



1
2
3
POWER
4
5
6
TV/VIDEO
7
8
9
CH ∧
SET
MENU
0
ENTER
SELECT
CH ∨
SHUTTLE SEARCH
◀◀REW
▶PLAY
FF▶▶
REC●
■STOP
PAUSE ▮▮
STILL
PICTURE
INDEX
<<VARIABLE SEARCH>>
CANCEL
TIMER
SKIP
ADD
DISPLAY
RESET
MEMORY
— COUNTER —
JVC
REMOTE CONTROL UNIT
①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑩
⑪
⑫
⑬
⑭
⑮
⑯
⑰
⑱

VCR Basic/On-Screen Menu Operation

- ① POWER button
- ② TV/VIDEO button
- ③ CHANNEL (CH)/SET buttons
- ④ Multi-Purpose Digit keys
- ⑤ MENU button
- ⑥ ENTER/SELECT button

Tape Mode Control

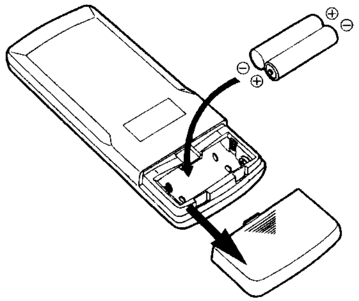
- ⑦ REW and FF (SHUTTLE SEARCH) buttons
- ⑧ REC button
- ⑨ PLAY button
- ⑩ STOP button
- ⑪ PAUSE/STILL button

Special Functions

- ⑫ PICTURE CONTROL button ☞p.21
- ⑬ INDEX button ☞p.22
- ⑭ VARIABLE SEARCH buttons ☞p.19

Timer, Tuner, and Tape Counter

- ⑮ TIMER button ☞p.14
- ⑯ CANCEL/SKIP/COUNTER RESET button ☞p.18, 22, 27
- ⑰ ADD/COUNTER MEMORY button ☞p.17, 19, 22
- ⑱ DISPLAY button ☞p.23



Installing Batteries

1. Slide the battery compartment cover in the direction of the arrow.
2. Insert 2 "AAA"-size batteries (provided) in the correct directions.
3. Replace the cover.

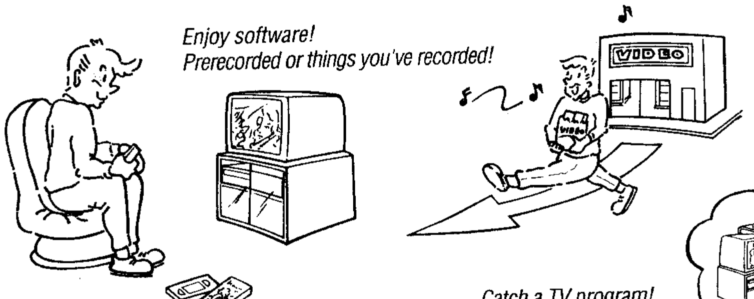
How To Use

The remote control can operate most of your VCR's functions.

- ■ Point the remote control at the sensor window.
- ■ The maximum operating distance of the remote control is about 8 m (26 ft).

Getting To Know Your VCR

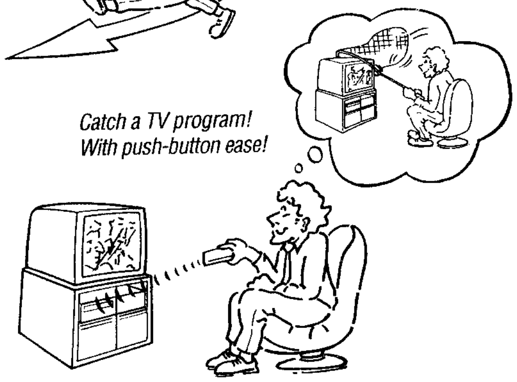
The 3 Basic Ways Of Using Your VCR



Enjoy software!
Prerecorded or things you've recorded!

Playback

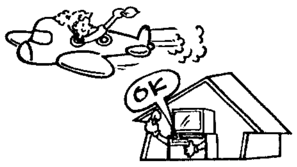
With the VCR properly hooked-up to your TV set, viewing videos is as easy as pushing the PLAY button. Prerecorded VHS software is available just about anywhere, and your VCR will let you enjoy it all. And, of course, you can enjoy those programs you've recorded yourself too.



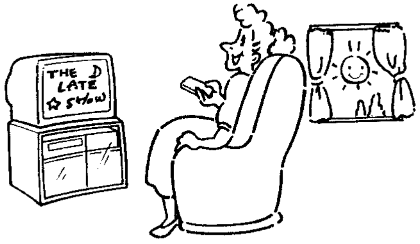
Catch a TV program!
With push-button ease!

Recording

Just press the REC and PLAY buttons together on your remote control. The VCR will record whatever it is that you're watching. In other words, you can instantly "catch" a TV program in progress to see it again later, show it to someone else, or keep it as part of your video library. Recording is possible in SP for 2 hours 40 minutes, or in EP for 8 hours, on a single T-160 cassette.



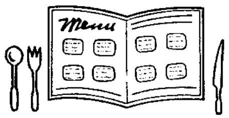
Watch TV programs when you want.
Record TV programs while you're away.



Timer-Recording

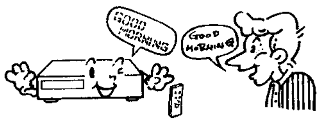
By using the built-in timer, you can set your VCR to record TV programs for you while you're asleep, while you're away, or while you're doing something else. Then you can watch those programs later, whenever it's convenient, whenever you want. This is what's called "timeshifting", and now you can do it the JVC way.

Some Other Functions On Your VCR



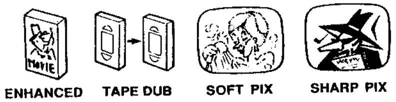
On-Screen Menu System

Do everything from VCR set up to timer-programming while watching bright, easy to see, easy to understand on-screen menus. The screen even turns green to let you know when a procedure has been completed.



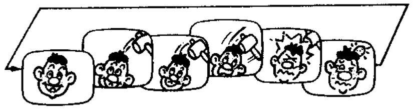
VCR "Message" Display Panel

The VCR "talks" to you from its message display panel. It's easy to understand what the VCR is doing at any time — a friendlier way to interact with your VCR.



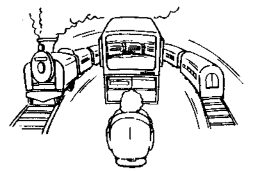
Picture Control

One-touch control over the type of video picture you want. Make it clearer, make it better for dubbing, make it softer, make it sharper — do it all with Picture Control.



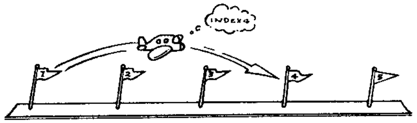
Repeat Playback

Automatic repeated playback of the whole tape or a program segment. Lets you enjoy those favorite scenes and favorite songs again and again.



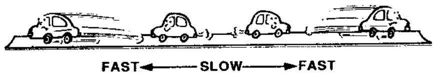
Hi-Fi Stereo Sound

Enjoy films with Hi-Fi stereo soundtracks just as you would in theaters. Use the built-in MTS (Multichannel TV Sound) decoder to record stereo programs in stereo, or to record SAP programs without losing the main audio.



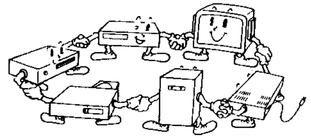
Index Search

Zooms to the index code number you specify. Easy location of index-coded programs at the touch of a button.



Variable-Speed Slow/Search

A variety of special-effects playback from slow motion to fast motion in either direction.



AV COMPU LINK

Build a totally integrated home entertainment system with JVC's AV COMPU LINK components. One-touch COMPU LINK video playback is possible — all components "co-operate" with each other. It's the "modern approach" to effortless AV entertainment.

Making The Right Connections

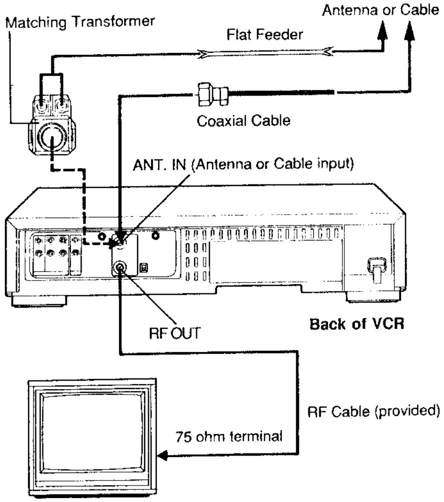
It's essential that your VCR be properly hooked up for proper results. Follow these steps carefully. THESE STEPS MUST BE COMPLETED BEFORE ANY VCR OPERATION CAN BE PERFORMED.

A VCR-TO-TV CONNECTION

RF CONNECTION

For standard TV sets:

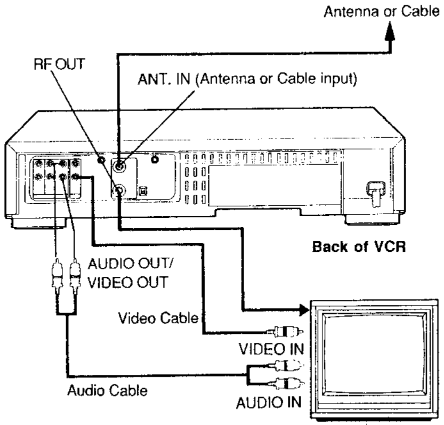
1. Disconnect the TV antenna from the TV.
2. Connect the TV antenna to the VCR.
3. Connect the VCR to the TV's antenna terminal using the provided RF Cable.


Matching Transformer
Flat Feeder
Antenna or Cable
Coaxial Cable
ANT. IN (Antenna or Cable input)
RF OUT
Back of VCR
RF Cable (provided)
75 ohm terminal

AV CONNECTION

For TV sets with AV input terminals:

1. Connect the antenna, VCR and TV as per "RF CONNECTION".
2. Connect the VCR to the TV's AV-IN terminals.


Antenna or Cable
RF OUT
ANT. IN (Antenna or Cable input)
Back of VCR
AUDIO OUT/
VIDEO OUT
Video Cable
VIDEO IN
Audio Cable
AUDIO IN

NOTES:

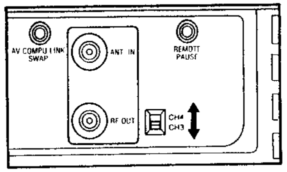
- Either pair of AUDIO OUT (1 or 2) can be used to connect to the television. Use the other pair to connect to an audio amplifier.

See the separate "Basic Guide For VCR Connections" for more information and other possible connections.

B SELECT VCR CHANNEL (3 OR 4)

With a standard RF connection, the VCR sends picture and sound signals through the connecting cable to your TV on channel 3 or 4. The VCR's switch is pre-set to CH3 prior to shipment. Set this switch to CH4 in areas where channel 3 is used for broadcasting.

Back of VCR


AV COMPU LINK
SWAP
ANT IN
REMOTE
PAUSE
RF OUT
CH4
CH3

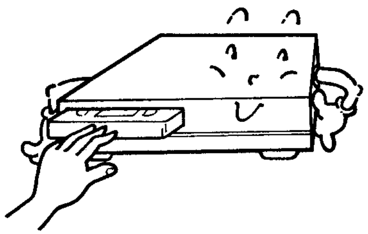
NOTES:

- To operate the VCR with your TV using an RF connection, it is always necessary to set your TV's channel to the one you set the VCR to in this step.

Handling Videocassettes

A LOADING A CASSETTE

1. Insert a cassette with its label side facing you.
   - If the cassette is not loaded firmly it will be ejected.



B UNLOADING A CASSETTE

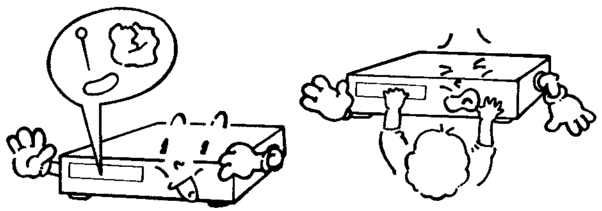
1. Press EJECT.
   - If the cassette will not eject, check to see if "TIMER" is displayed on the VCR's message panel. If it is, press the TIMER button to turn it off.

NOTES:

- Be sure to insert the cassette firmly into the slot; otherwise it will be automatically ejected.
- The automatic loading mechanism will operate only when the cassette is inserted correctly.

WARNING

- Do not insert fingers or foreign objects into the cassette loading slot since this could lead to injury or damage to the mechanism. Be especially careful with children.
- Do not try to pull out a cassette once automatic loading has started.



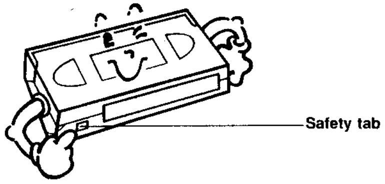
Usable Cassettes And Their Recording Time

Type of Cassette	Recording/Playback Time	
	SP (Standard Play)	EP (Extended Play)
T-30	30 minutes	1 hour, 30 minutes
T-60	1 hour	3 hours
T-90	1 hour, 30 minutes	4 hours, 30 minutes
T-120	2 hours	6 hours
T-160	2 hours, 40 minutes	8 hours

This VCR can record on regular VHS and Super VHS cassettes. However, it will record and play back regular VHS video signals only. **It is not possible to play back a prerecorded Super VHS tape.**

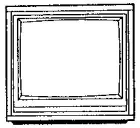
Accidental Erasure Prevention

To prevent accidental recording on a recorded cassette, remove its safety tab. To record on it later, cover the hole with adhesive tape.

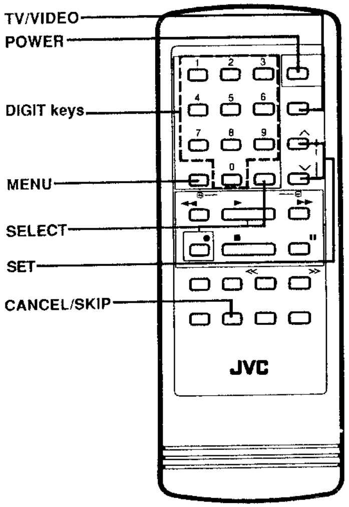


Setting The Clock

Since your VCR bases all of its timer recording start and stop "decisions" on the time kept by its built-in clock, accurate setting of this clock is crucial for proper timer-recording results.



POWER ON;
SELECT CHANNEL
3 OR 4 (OR AV MODE)

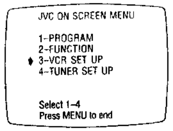


A TURN ON THE VCR

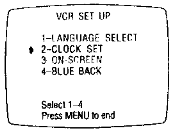
1. Press POWER.
2. Press TV/VIDEO to select the VIDEO mode.
   - The VCR's VIDEO indicator should be lit.

B ACCESS THE ON-SCREEN MENU

3. Press MENU.
4. Press the 3 key. (VCR Set Up)
5. Press the 2 key. (Clock Set)



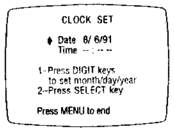
```
JVC ON SCREEN MENU

  1-PROGRAM
  2-FUNCTION
♦ 3-VCR SET UP
  4-TUNER SET UP

Select 1–4
Press MENU to end
```



```
VCR SET UP

  1-LANGUAGE SELECT
♦ 2-CLOCK SET
  3 ON-SCREEN
  4-BLUE BACK

Select 1–4
Press MENU to end
```

C INPUT THE MONTH/DAY/YEAR

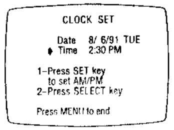
6. Press the appropriate digit keys.
   - Example: For August 6, 1991, press 08 06 91. Always enter "0" before single-digit entries.
7. Press SELECT.
   - The day of the week will automatically appear.



```
CLOCK SET

♦ Date  8/ 6/91
  Time  -- : -- --

1-Press DIGIT keys
  to set month/day/year
2-Press SELECT key

Press MENU to end
```

D INPUT THE TIME

8. Press the appropriate digit keys.
   - Example: For 2:30 press 0 2 3 0.
9. Press SET to choose AM or PM.



```
CLOCK SET

  Date  8/ 6/91 TUE
♦ Time  2:30 PM

1-Press SET key
  to set AM/PM
2-Press SELECT key

Press MENU to end
```

E START THE CLOCK

10. Press SELECT.
    - Screen turns green to let you know the clock has started.

F RETURN TO THE TV SCREEN

11. Press MENU.

TO MAKE CORRECTIONS

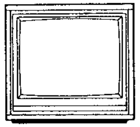
Press CANCEL/SKIP (repeatedly if needed) to move back to an item you want to change.

ATTENTION:

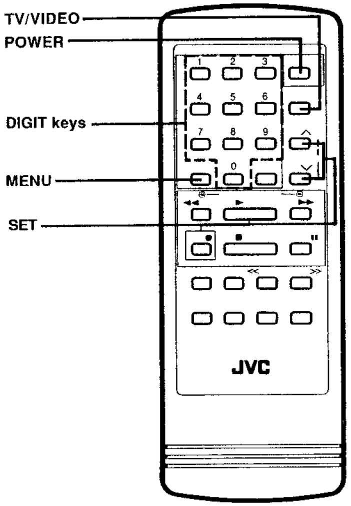
On-screen menus and messages can be displayed in French or Spanish. For instructions on changing the on-screen language ☞ p.16.

Setting The Tuner

The Auto Set feature introduced here automatically assigns receivable channels in your area to the CHANNEL UP/DOWN button and skips the others so you won't have to go through any "blank" channels to get to the one you want.



POWER ON;
SELECT CHANNEL
3 OR 4 (OR AV MODE)

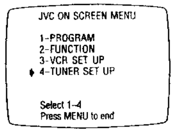


A TURN ON THE VCR

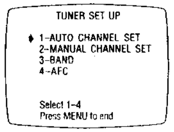
1. Press POWER.
2. Press TV/VIDEO to select the VIDEO mode.
   - The VCR's VIDEO indicator should be lit.

B ACCESS THE ON-SCREEN MENU

3. Press MENU.
4. Press the 4 key. (Tuner Set Up)
5. Press the 1 key. (Auto Channel Set)



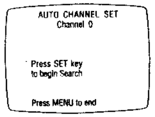
```
JVC ON SCREEN MENU

  1-PROGRAM
  2-FUNCTION
  3-VCR SET UP
♦ 4-TUNER SET UP

Select 1–4
Press MENU to end
```



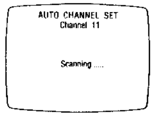
```
TUNER SET UP

♦ 1-AUTO CHANNEL SET
  2-MANUAL CHANNEL SET
  3-BAND
  4-AFC

Select 1–4
Press MENU to end
```

C START AUTO SET

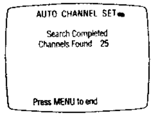
6. Press SET.
   - Screen turns green and "Scanning..." is displayed while auto set is in progress.
   - After completion of auto set, the total number of set channels is displayed.



```
AUTO CHANNEL SET
Channel 0

Press SET key
to begin Search

Press MENU to end
```



```
AUTO CHANNEL SET
Channel 11

Scanning .....
```



```
AUTO CHANNEL SET

Search Completed
Channels Found  25

Press MENU to end
```

D RETURN TO THE TV SCREEN

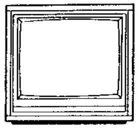
7. Press MENU three times.

TO ADD/DELETE CHANNELS MANUALLY

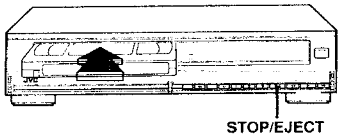
☞ p.17, 18.

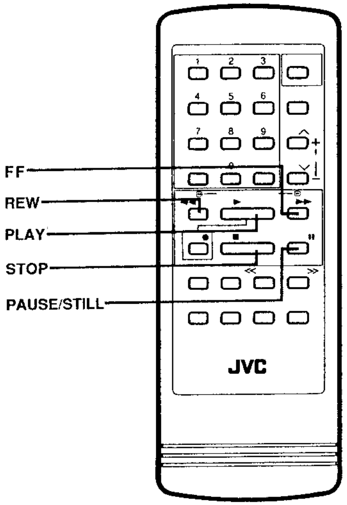
Playback

The easiest, most basic operation possible with your VCR is tape playback. Already-recorded signals on a video tape are read by your VCR and displayed on your TV just like a TV program.



POWER ON;
SELECT CHANNEL
3 OR 4 (OR AV MODE)





A LOAD A CASSETTE

1 Insert a cassette.
- The VCR power will come on automatically.
- If the safety tab on the cassette is removed, playback will start automatically.

B TO START PLAYBACK

2 Press PLAY.
- The VCR mode is automatically set and the VIDEO indicator will light.

C TO STOP PLAYBACK

3 Press STOP.

D TO REWIND OR FAST-FORWARD

4 Press REW to rewind the tape.
5 Press FF to fast-forward the tape.
- Press STOP to stop rewind or fast-forward.

E TO EJECT THE TAPE

6 Press the STOP/EJECT button on the VCR.

High-Speed Forward And Reverse Search

During Playback:

Press FF for high-speed forward search.
Press REW for high-speed reverse search.
Press PLAY to resume normal playback.
- For short searches, keep FF or REW pressed for more than *2* seconds. When released, normal playback will continue.

Still Playback And Frame Advance

During Playback:

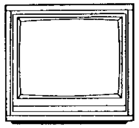
1 Press PAUSE/STILL to view a still picture.
2 Press again to advance the picture frame by frame.
3 Press PLAY to resume normal playback.

NOTES:

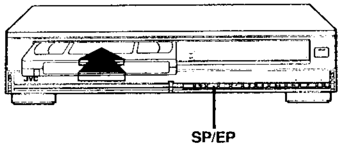
- Tapes with monaural soundtracks (normal audio) are automatically played back in the NORM mode. When playing back tapes with Hi-Fi stereo soundtracks or SAP-recorded tapes, ☞p.19.
- The VCR automatically stops when still continues for more than 5 minutes.
- If the still picture is unstable (vertical jitter) use the VCR's CHANNEL UP/DOWN buttons to correct the picture.
- During search playback, some noise bars will appear.
- If noise bars appear during playback, correct using manual tracking. ☞p.20.
- There is no audio during search, still, or frame-by-frame playback.
- Picture loss will occur when search, still, or frame-by-frame is attempted with LP-mode recorded tapes. Press PLAY to return to normal playback and restore the picture.
- The VCR automatically rewinds when the end of the tape is reached during play, fast-forward or forward search.

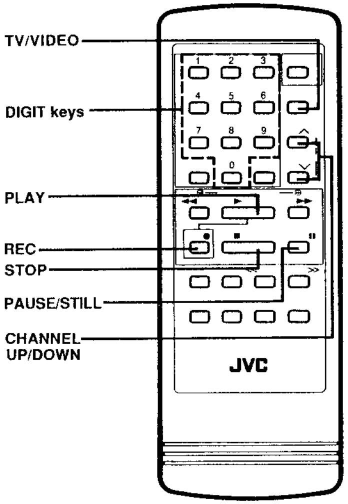
Recording

TV signals being received by the VCR's built-in tuner can be recorded onto a video tape. This is realtime video recording.



POWER ON;
SELECT CHANNEL
3 OR 4 (OR AV MODE)





A LOAD A CASSETTE

1 Insert a cassette with the safety tab in place.
- The VCR power will come on automatically. Be sure that the VIDEO indicator is lit; if not, press TV/VIDEO so that it lights.

B CHOOSE A PROGRAM

2 Press CHANNEL UP/DOWN or the digit keys to select the channel you wish to record.

C SELECT THE TAPE SPEED

3 Press the SP/EP button on the VCR.

D TO START RECORDING

4 Press REC and PLAY simultaneously.

E TO PAUSE RECORDING

5 Press PAUSE/STILL.
6 Press PLAY to resume recording.

F TO STOP RECORDING

7 Press STOP.

To Watch Another Program While Recording

During Record:

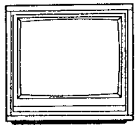
1 Press TV/VIDEO. The VCR's VIDEO indicator and the TV broadcast being recorded will disappear.
2 Use the channel controls on the TV to select the other channel you wish to view.
- The program selected with the TV channel controls will appear on the TV screen while the one selected with the VCR channel controls will be recorded on the tape.

NOTES:

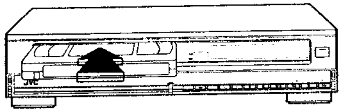
- After pause, when recording is resumed, a few frames recorded before the pause may be overlapped by the new recording. This is meant to reduce picture distortion and is not a malfunction.
- The VCR automatically stops when record-pause continues for more than 5 minutes.
- If the REC button does not work, check to see if the cassette's safety tab has been removed.
- The channel cannot be changed while recording is in progress. To change the channel, press PAUSE, then change the channel.
- The VCR automatically rewinds when the end of the tape is reached during recording.
- For SAP recording, ☞p.24.

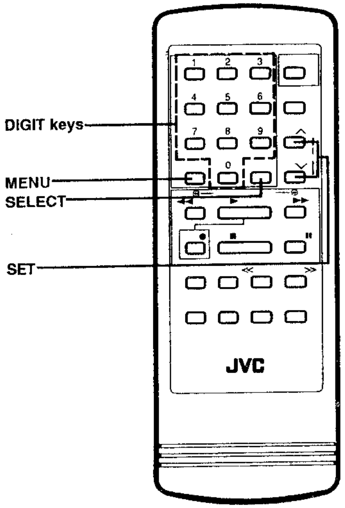
Timer-Recording

The on-screen timer programming method introduced here is the most comprehensive and versatile of those possible with your VCR. You can program up to 8 recordings over a 1 year period. TIMER PROGRAMMING IS NOT POSSIBLE UNLESS THE CLOCK HAS BEEN SET.



POWER ON;
SELECT CHANNEL
3 OR 4 (OR AV MODE)



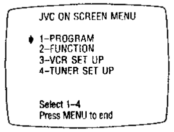


A LOAD A CASSETTE

1 Insert a cassette with the safety tab in place.
- The VCR power will come on automatically. Be sure that the VIDEO indicator is lit; if not, press TV/VIDEO so that it lights.

B ACCESS THE ON-SCREEN MENU

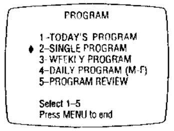
2 Press MENU.
3 Press the 1 key. (Program)
4 Press the 2 key. (Single Program)



JVC ON SCREEN MENU

♦ 1–PROGRAM
2–FUNCTION
3–VCR SET UP
4–TUNER SET UP

Select 1–4
Press MENU to end



PROGRAM

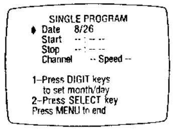
1–TODAY'S PROGRAM
♦ 2–SINGLE PROGRAM
3–WEEKLY PROGRAM
4–DAILY PROGRAM (M-F)
5–PROGRAM REVIEW

Select 1–5
Press MENU to end

C INPUT THE PROGRAM'S DATE

5 Press the appropriate digit keys.
- Example: For August 26, press 0 8 2 6. Always enter "0" before single-digit entries.

6 Press SELECT.
- The day of the week will automatically appear.



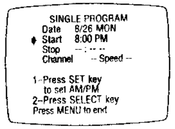
SINGLE PROGRAM
♦ Date 8/26
Start -- : -- --
Stop -- : -- --
Channel -- Speed --

1–Press DIGIT keys
to set month/day
2–Press SELECT key
Press MENU to end

D INPUT THE REC START TIME

7 Press the appropriate digit keys.
- Example: For 8:00, press 0 8 0 0.

8 Press SET to choose AM or PM.
9 Press SELECT.



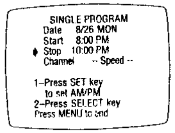
SINGLE PROGRAM
Date 8/26 MON
♦ Start 8:00 PM
Stop -- : -- --
Channel -- Speed --

1–Press SET key
to set AM/PM
2–Press SELECT key
Press MENU to end

E INPUT THE REC STOP TIME

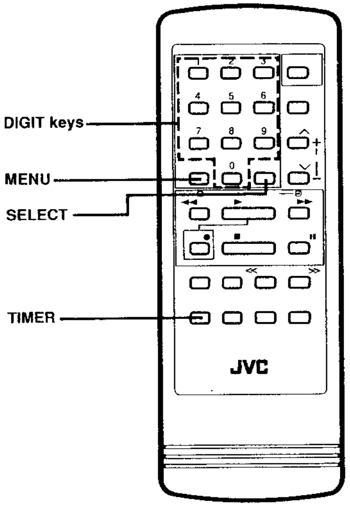
10 Press the appropriate digit keys.
- Example: For 10:00, press 1 0 0 0.

11 Press SET to choose AM or PM.
12 Press SELECT.



SINGLE PROGRAM
Date 8/26 MON
Start 8:00 PM
♦ Stop 10:00 PM
Channel -- Speed --

1–Press SET key
to set AM/PM
2–Press SELECT key
Press MENU to end

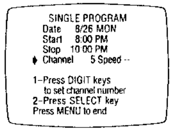


NOTE:
- To timer-record cable channels received through the Converter Box, input the Converter Box's output channel (e.g. 3) in step 13. Select the channel you wish to record at the Converter Box and keep the Converter Box set to ON.

F INPUT THE CHANNEL NUMBER

13 Press the appropriate digit keys.
- Example: For channel 5, press 5.

14 Press SELECT.

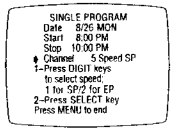


SINGLE PROGRAM
Date 8/26 MON
Start 8:00 PM
Stop 10:00 PM
♦ Channel 5 Speed --

1–Press DIGIT keys
to set channel number
2–Press SELECT key
Press MENU to end

G SELECT THE TAPE SPEED

15 Press the 1 key for SP, 2 for EP.
16 Press SELECT.
- Screen turns green to let you know that programming is completed.



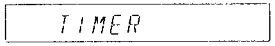
SINGLE PROGRAM
Date 8/26 MON
Start 8:00 PM
Stop 10:00 PM
♦ Channel 5 Speed SP
1–Press DIGIT keys
to select speed;
1 for SP/2 for EP
2–Press SELECT key
Press MENU to end

H RETURN TO THE TV SCREEN

17 Press MENU three times.

I SET TO TIMER MODE

18 Press TIMER.
- The VCR will enter the timer mode, power will go off, and "TIMER" will appear on the display panel.



- Press TIMER again to release the timer mode.

TO MAKE CORRECTIONS

Press CANCEL/SKIP (repeatedly if needed) to move back to an item you want to change.

For other timer programming methods ☞ p.25.
Any questions? ☞ p.26.

MODE Mode Displays — What They Mean

Message Display Panel

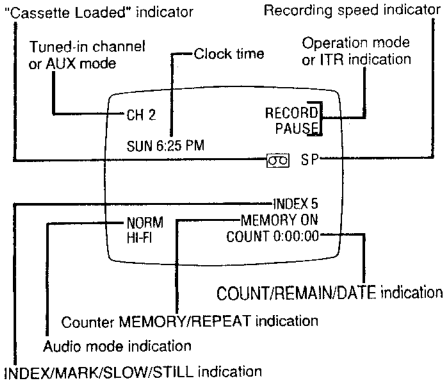
The operation mode is displayed on the VCR's display panel automatically. Displayed messages are designed to be self-explanatory. Here are some of the more common displays:

DISPLAY	MODE	DISPLAY	MODE
PLAY	Play	PAUSE 10	Record Pause
STILL	Still	FWD SEARCH	Forward Search
FF	Fast-Forward	REV SEARCH	Reverse Search
REW	Rewind	FWD SLOW	Forward Slow
REC SP 10	Record	REV SLOW	Reverse Slow
TIMER REC	Timer-Recording	EJECT	Eject

For a more comprehensive list and FDP Dimmer instructions ☞ p.29.

On-Screen Display

Operation modes are displayed on the TV screen unless the "On-Screen" function is set to "OFF". ☞p.16.


"Cassette Loaded" indicator
Recording speed indicator
Tuned-in channel or AUX mode
Clock time
Operation mode or ITR indication
CH 2
RECORD
PAUSE
SUN 6:25 PM
SP
INDEX 5
NORM
HI-FI
MEMORY ON
COUNT 0:00:00
COUNT/REMAIN/DATE indication
Counter MEMORY/REPEAT indication
Audio mode indication
INDEX/MARK/SLOW/STILL indication

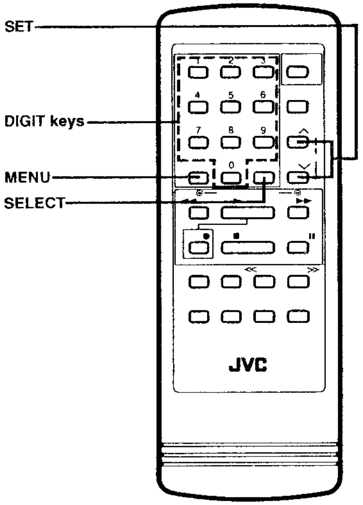
AUTOMATIC INDICATION

- **Channel**
  When the channel is changed, the new channel is displayed on the screen for 5 seconds.
- **Operation mode**
  When the operation mode is changed, the new mode is displayed — RECORD (5 sec.), PLAY (5 sec.), FF/REW (5 sec., when engaged from Stop mode), and RECORD PAUSE (for as long as Pause is engaged).
- **"Cassette Loaded" mark**
  When a cassette is loaded the mark is displayed for 5 seconds. It blinks when EJECT is pushed.

MANUAL RECALL

1. Press ENTER.
   - This displays the mode and time on the screen for 5 seconds.
2. Press ENTER again to clear the display.

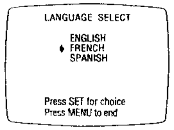
VCR On-Screen VCR Set Up


SET
DIGIT keys
MENU
SELECT
JVC

Language Select

Although the pre-set on-screen language is English, you can set the VCR to display on-screen menus and messages in French or Spanish.

1. Press MENU.
2. Press the 3 key. (VCR Set Up)
3. Press the 1 key. (Language Select)
4. Press SET to choose the language you want.
5. Press MENU to end.


LANGUAGE SELECT

ENGLISH
♦ FRENCH
SPANISH

Press SET for choice
Press MENU to end

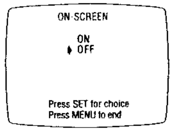
Clock Set

Always re-set the clock after a power outage, or whenever your time zone changes to or from Daylight Saving Time.
For instructions ☞ p.9.

On-Screen (On/Off)

You can choose whether or not to display VCR mode indications on the TV screen. Pre-set to "ON", on-screen messages can be turned "OFF".

1. Press MENU.
2. Press the 3 key. (VCR Set Up)
3. Press the 3 key. (On-Screen)
4. Press SET to choose ON or OFF.
5. Press MENU to end.


ON-SCREEN

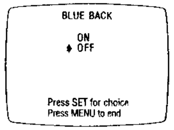
ON
♦ OFF

Press SET for choice
Press MENU to end

Blue Back (On/Off)

Your VCR is set to display the JVC logo with blue background on your TV screen whenever a broadcast signal is not received or is very weak. You can cancel this function if you wish to receive extremely weak signals.

1. Press MENU.
2. Press the 3 key. (VCR Set Up)
3. Press the 4 key. (Blue Back)
4. Press SET to choose ON or OFF.
5. Press MENU to end.

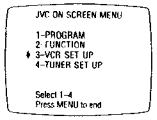

BLUE BACK

ON
♦ OFF

Press SET for choice
Press MENU to end

NOTES:

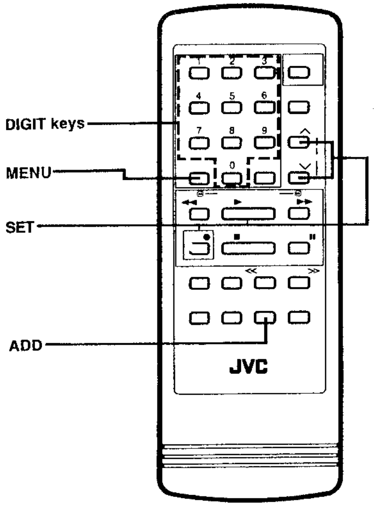
- On-Screen Menu selections can be chosen by pressing the corresponding digit key, or by pressing SET to move the cursor arrow to the correct position and then pressing SELECT.


JVC ON SCREEN MENU

1-PROGRAM
2-FUNCTION
♦ 3-VCR SET UP
4-TUNER SET UP

Select 1-4
Press MENU to end

TUNER On-Screen Tuner Set Up



Auto Channel Set

Since receivable channels differ by locale, it will be necessary to reset your VCR's channels when you move to another location. Auto Channel Set is the easiest way to do this. For instructions ☞ p.10.

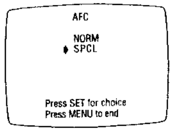
Manual Channel Set

After Auto Channel Setting, you way wish to modify your VCR's receivable channels (add weak channels that were skipped, delete channels you don't want to receive).

TO ADD A WEAK CHANNEL

A CHANGE AFC (AUTOMATIC FREQUENCY CONTROL)

1 Press MENU.
2 Press the 4 key. (Tuner Set Up)
3 Press the 4 key. (AFC)
4 Press SET to choose SPCL.
5 Press MENU.



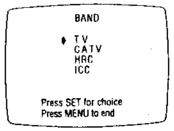
AFC

NORM
♦ SPCL

Press SET for choice
Press MENU to end

B SELECT THE TV BAND

6 Press the 3 key. (Band)
7 Press SET to choose TV.
8 Press MENU.



BAND

♦ TV
CATV
HRC
ICC

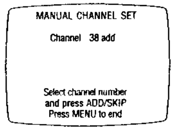
Press SET for choice
Press MENU to end

C ADD THE CHANNEL

9 Press the 2 key. (Manual Channel Set)
10 Press the appropriate digit keys to input the channel number.
- Example: For channel 38, press 3 8.

11 Press ADD.
- Display should change from "skip" to "add".

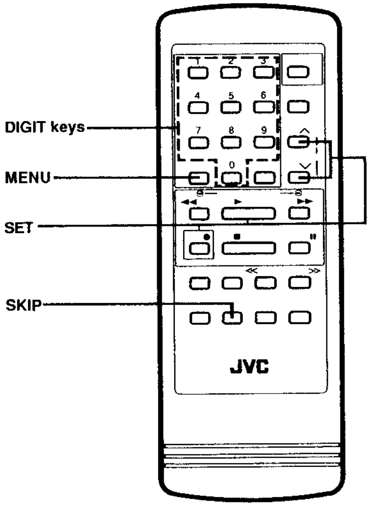
12 Press MENU to end.



MANUAL CHANNEL SET

Channel 38 add

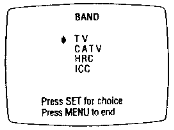
Select channel number
and press ADD/SKIP
Press MENU to end



TO DELETE AN UNWANTED CHANNEL

A SELECT THE BAND

1 Press MENU.
2 Press the 4 key. (Tuner Set Up)
3 Press the 3 key. (Band)
4 Press SET to choose the appropriate band.
5 Press MENU.



BAND

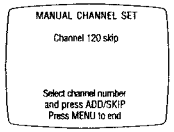
♦ TV
CATV
HRC
ICC

Press SET for choice
Press MENU to end

B SKIP THE CHANNEL

6 Press the 2 key. (Manual Channel Set)
7 Press the appropriate digit keys to input the channel number.
8 Press SKIP.
- Display should change from "add" to "skip".

9 Press MENU to end.



MANUAL CHANNEL SET

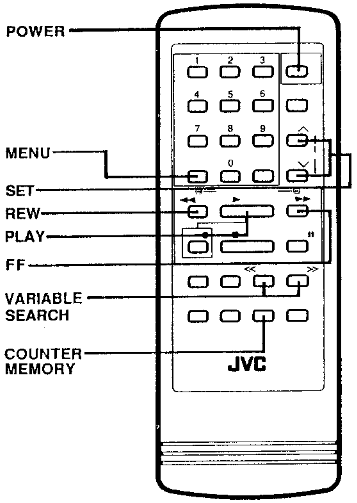
Channel 120 skip

Select channel number
and press ADD/SKIP
Press MENU to end

NOTES:

- The BAND select feature has 4 settings (TV, CATV, HRC, and ICC). Set to TV if your antenna provides only UHF and VHF channels. Set to CATV if your antenna system is a cable TV line with or without a cable converter/decoder box. Set to HRC or ICC if this matches your particular cable system; check with your cable supplier to determine your type of system.

For Playback



NOTES:

- If noise bars appear during slow motion, correct using manual tracking. ☞p.20.
- During variable-speed search, some noise bars will appear.

Variable-Speed Search And Slow Motion

You can view pictures in slow to fast motion in either direction. The VARIABLE SEARCH buttons let you control the speed and the direction.

During Playback or Still:

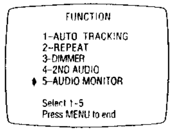
1. Press either VARIABLE SEARCH button. Tape will move in the corresponding direction.
    - The more times the button is pressed, the faster the playback picture will move.
    - To decrease speed, press the button for the opposite direction.
    - Press PLAY to resume normal playback.

Soundtrack Selection

Your VCR is capable of recording two soundtracks (Hi-Fi and NORMAL) simultaneously, and playing back the selected soundtrack or two together.

During Playback or Stop:

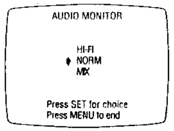
1. Press MENU.
2. Press the 2 key. (Function)
3. Press the 5 key. (Audio Monitor)
4. Press SET to choose HI-FI, NORM, or MIX.
    - HI-FI to listen to the Hi-Fi soundtrack.
    - NORM to listen to the normal soundtrack (such as SAP). ☞p.24
    - MIX to listen to both soundtracks combined. Select this setting when playing back edited tapes with insert edits or dubbed audio made on an appropriately equipped VCR.
5. Press MENU to end.



FUNCTION

1-AUTO TRACKING
2-REPEAT
3-DIMMER
4-2ND AUDIO
♦ 5-AUDIO MONITOR

Select 1-5
Press MENU to end



AUDIO MONITOR

HI-FI
♦ NORM
MIX

Press SET for choice
Press MENU to end

NOTES:

- You do not have to set to NORM when playing back tapes with normal soundtrack only.
- When "MIX" is selected, both "HI-FI" and "NORM" appear on the TV screen when the ENTER button is pressed.

Memory Play

For automatic start of playback after a tape is rewound:

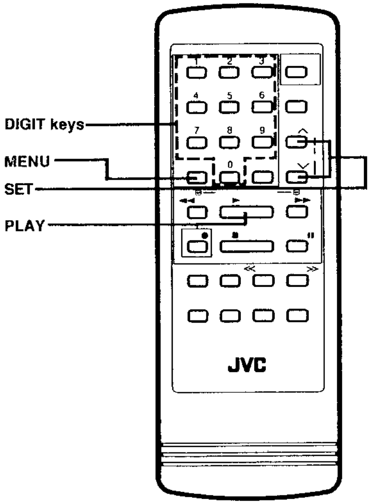
1. Press REW.
2. Press PLAY within 2 seconds.

For automatic start of playback beginning at counter position "0:00:00":

1. Press COUNTER MEMORY.
2. Press REW (or FF).
3. Press PLAY within 2 seconds.

For automatic power off after tape is rewound:

1. Press REW.
2. Press POWER within 2 seconds.

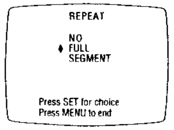


Repeat Playback

Your VCR can automatically play back the whole tape or an index-marked portion 5 times repeatedly.

During Stop:

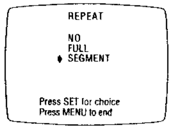
1. Press MENU.
2. Press the 2 key. (Function)
3. Press the 2 key. (Repeat)
4. Press SET to choose NO, FULL, or SEGMENT repeat.
5. Press MENU to end.
6. Press PLAY. Repeated playback will start. After playback 5 times consecutively, playback will stop.
    - Be sure to reset Repeat to NO before pressing PLAY again because this will re-start repeat playback.



REPEAT

NO
♦ FULL
SEGMENT

Press SET for choice
Press MENU to end



REPEAT

NO
FULL
♦ SEGMENT

Press SET for choice
Press MENU to end

Manual Tracking

Your VCR is equipped with video/Hi-Fi audio automatic tracking control. If you wish to adjust tracking manually, you can override this function.

During Playback or Stop:

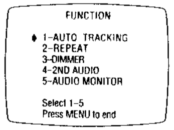
1. Press MENU.
2. Press the 2 key. (Function)
3. Press the 1 key. (Auto Tracking)
4. Press SET to choose OFF.
5. Press MENU to end.
6. Press SET (– or +) to adjust tracking when required during playback.
    - Reset Auto Tracking to ON when you wish to re-engage automatic tracking.

During Slow:

1. Press SET (– or +) to adjust tracking.

During Still:

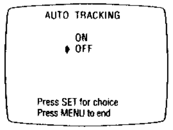
1. Press PAUSE/STILL a few more times to remove the noise bars from the screen.
    - Since automatic tracking is not effective during slow motion or still playback, there is no need to set Auto Tracking to OFF.



FUNCTION

♦ 1-AUTO TRACKING
2-REPEAT
3-DIMMER
4-2ND AUDIO
5-AUDIO MONITOR

Select 1-5
Press MENU to end



AUTO TRACKING

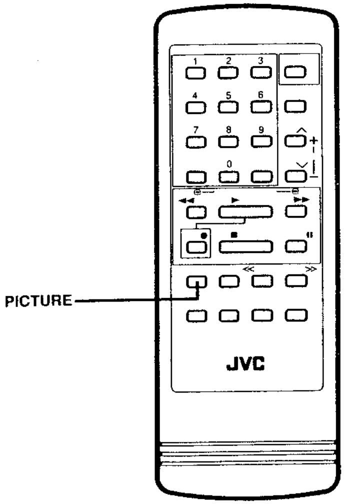
ON
♦ OFF

Press SET for choice
Press MENU to end

NOTES:

- The settings for all on-screen accessed functions (Auto Tracking, Repeat, Dimmer) remain unchanged unless deliberately changed by the user; settings do not reset automatically when VCR power is turned off and turned on again.

For Playback (cont'd)


PICTURE
JVC

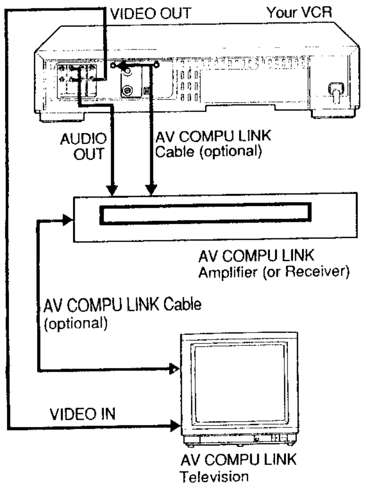
Picture Control

Your VCR has a built-in video processor that lets you choose the type of playback picture that's best for any given application. The VCR's PICTURE CONTROL indicator lights when this function is activated.

During Playback:

1 Press PICTURE as many times as required to reach the desired setting.

VCR Display	When To Use
ENHANCED	When viewing tapes with noise due to repeated playback, such as rental videos.
TAPE DUB	When editing to another VCR.
SOFT PIX	When you want a soft picture.
SHARP PIX	When you want a sharp picture.
OFF	When no modification is required.


VIDEO OUT
Your VCR
AUDIO OUT
AV COMPU LINK Cable (optional)
AV COMPU LINK Amplifier (or Receiver)
AV COMPU LINK Cable (optional)
VIDEO IN
AV COMPU LINK Television

AV COMPU LINK Playback

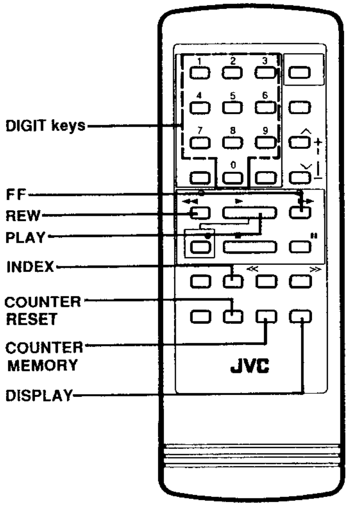
Your VCR is compatible with JVC's AV COMPU LINK components which include amplifiers (or receivers) and televisions.
Connect your VCR to an AV COMPU LINK amplifier and an AV COMPU LINK television as illustrated. AV COMPU LINK video playback is as easy as this:

- Simply load a cassette in your VCR and press PLAY. (If the cassette's safety tab has been removed, even this "touch" is not necessary.) The amplifier and TV turn on automatically and the TV's mode is automatically set to VIDEO; you're already watching!

NOTES:

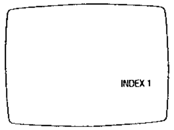
- To turn off the system, simply switch off the amplifier's power. Your VCR and TV will automatically switch off. If your VCR is recording, only the television is switched off.

For Tape Access


DIGIT keys
FF
REW
PLAY
INDEX
COUNTER RESET
COUNTER MEMORY
DISPLAY
JVC

Index Search

This function gives you quick access to any one of 9 index codes in either direction. Your VCR automatically marks index codes at the beginning of each recording.

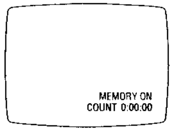


1 Press INDEX. "INDEX 1" will be displayed.
  - If you wish to access index codes 2 through 9, press INDEX repeatedly until the correct index number is displayed.

2 Press FF or REW. Index Search will start in the corresponding direction.

Counter Memory

During Play or Stop:


MEMORY ON
COUNT 0:00:00

1 Press DISPLAY until a counter reading appears.

2 Press COUNTER RESET at a point you wish to locate later.
  - The counter will read "0:00:00".

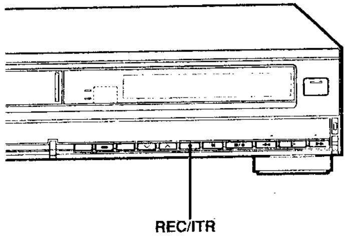
3 Press COUNTER MEMORY.

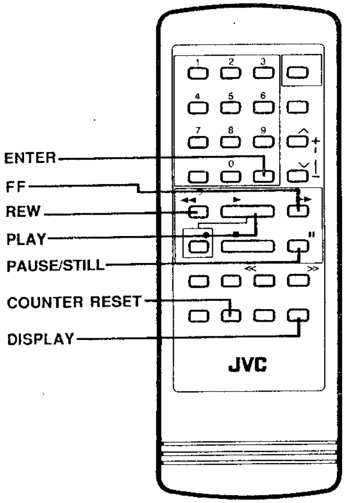
4 Press REW (or FF) when you wish to return to that point.
  - The tape will rewind (or fast forward) and stop at about "0:00:00" automatically.

NOTES:

- A "MARK" indication blinks on the TV screen and "INDEX MARK" is displayed on the VCR's display panel each time an index code is marked.
- Press PLAY or STOP to cancel Index Search before completion.
- If the end of the tape is reached during Index Search, the mode is cancelled and the tape is rewound to the beginning.

For Recording





NOTES:

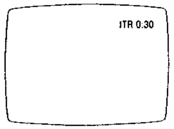
- With Retake, rainbow noise may occur in the rewound and re-recorded section.
- The Remaining Tape Time is calculated based on the tape speed (SP or EP) being used. The indicated remaining time is only approximate.

Instant Timer Recording (Off Timer)

You can start a recording and then set the VCR to shut off automatically after a set duration.

During Record:

1. Press the REC/ITR button on the VCR. A "0:30" indication appears, advising that power will switch off after 30 minutes.
2. Press REC/ITR again to delay the off-time by 30-minute increments (up to 9 hours).
   - This function is available only by using the REC/ITR button on the VCR.



Retake

You can cut out unwanted parts of a TV program while you're recording it.

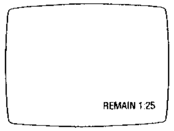
During Record:

1. Press PAUSE.
2. Press FF or REW for normal-speed search in the corresponding direction.
   - Release to return to Record-Pause mode.
3. Press PLAY when you wish to resume recording.

Remaining Tape Time Indication

When you need to know the tape's remaining time.

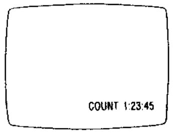
1. Press DISPLAY until "REMAIN" appears. Approximate remaining time appears on the TV screen and VCR display panel.
   - The remaining time display on the VCR changes back to the previous mode display after 5 seconds.
   - Pressing DISPLAY repeatedly changes the displayed indication (Counter → Remain → Date → Off).
2. Press ENTER to clear the screen.

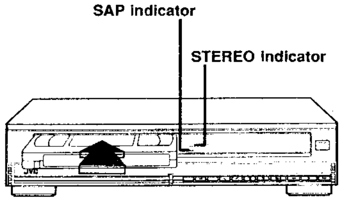


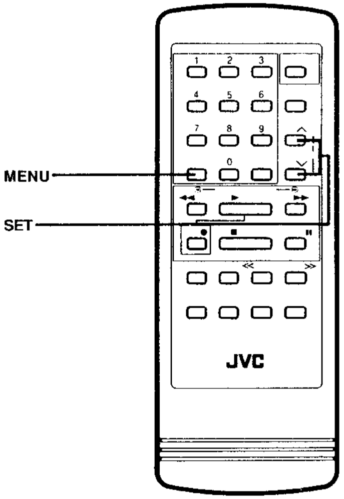
Elapsed Recording Time Indication

When you need to know the exact time of a recording.

1. Press DISPLAY until a counter reading appears.
2. Press COUNTER RESET before starting recording.
   - The counter will be reset to "0:00:00" and show the exact elapsed time as the tape runs.
   - The counter display on the VCR will be replaced by the Record mode display after 5 seconds.
3. Press ENTER to clear the counter reading from the screen.







Stereo And SAP (Second Audio Program)

Your VCR is equipped with an MTS decoder for reception of Multichannel TV Sound broadcasts.

- When a stereo program is being received, the STEREO indicator lights.
- When an SAP program (such as a bilingual broadcast) is being received, the SAP indicator lights.
- When a stereo program is accompanied by SAP audio, both indicators light.

To Record Stereo Programs

Stereo programs are automatically recorded in stereo on the Hi-Fi audio track. No special operation is required. Simply follow the basic recording procedure.

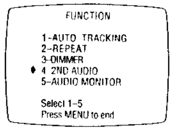
- To listen to the stereo soundtrack while recording, set the on-screen AUDIO MONITOR to "HI-FI". ☞p.19

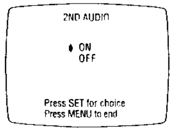
To Record SAP Programs

1. Press MENU.
2. Press the 2 key. (Function)
3. Press the 4 key. (2nd Audio)
4. Press SET to choose ON.
5. Press MENU to end.

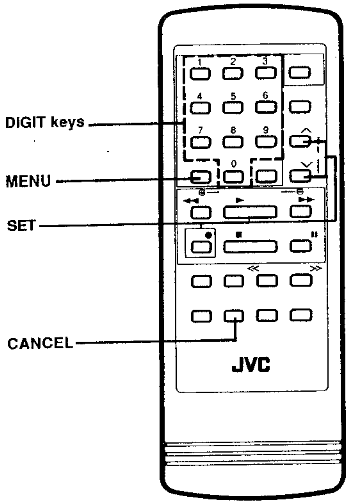
Then follow the basic recording procedure.

- To listen to the SAP audio, be sure to set the on-screen AUDIO MONITOR to "NORM". When set to "HI-HI", you will hear the main audio program; when set to "MIX" both languages will be mixed.





For Timer-Recording


DIGIT keys
MENU
SET
CANCEL
JVC

Today's Program

This function offers an easier way to program the VCR for same-day timer-recording. The VCR "assumes" that the date of the program you wish to record is "today" so you don't have to input the date.

1. Press MENU.
2. Press the 1 key. (Program)
3. Press the 1 key. (Today's Program)
   - Subsequent steps are the same as steps D - H of "Single Program". ☞ p.13-14.

Weekly Program

This function lets you set the VCR to timer-record at the same time on the same day every week. Use it to record weekly serials.

1. Press MENU.
2. Press the 1 key. (Program)
3. Press the 3 key. (Weekly Program)
   - Subsequent steps are the same as steps C - H of "Single Program". ☞ p.13-14.

Daily Program

This function lets you set the VCR to timer-record at the same time everyday, Monday through Friday. Use it record daily serials (like soaps), news, etc.

1. Press MENU.
2. Press the 1 key. (Program)
3. Press the 4 key. (Daily Program)
   - Subsequent steps are the same as steps C - H of "Single Program". ☞ p.13-14.

Program Review

You can check the contents of the VCR's timer memory using this function.

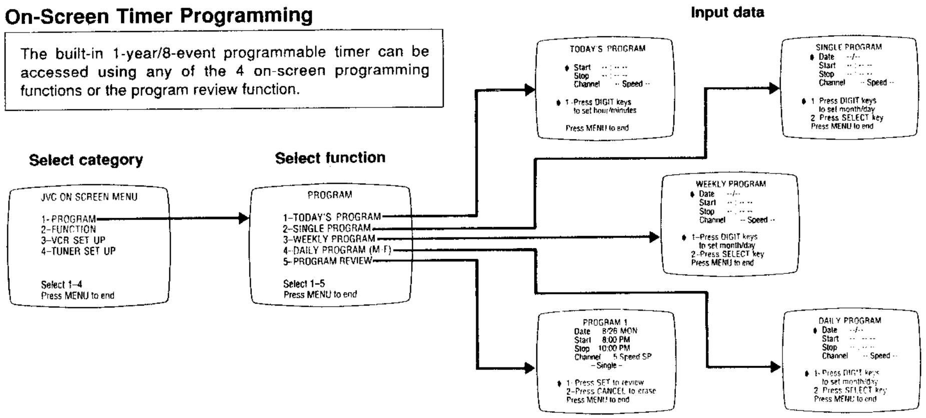
1. Press MENU.
2. Press the 1 key. (Program)
3. Press the 5 key. (Program Review)
4. Press SET to review timer-programmed data.
   - Press CANCEL to erase a program from memory.
5. Press MENU to end.

Things You Should Know

Timer-recording is one of the most useful functions of your VCR, and, if you don't understand it, it can be one of the most complicated too. Although JVC's on-screen programming is designed to make timer programming easier to understand and easier to do, please read the following to get a clear idea about why things work the way they work, and what you should do when things don't work as expected.

On-Screen Timer Programming

The built-in 1-year/8-event programmable timer can be accessed using any of the 4 on-screen programming functions or the program review function.


Input data
Select category
Select function
JVC ON SCREEN MENU
1-PROGRAM
2-FUNCTION
3-VCR SET UP
4-TUNER SET UP
Select 1–4
Press MENU to end
PROGRAM
1-TODAY'S PROGRAM
2-SINGLE PROGRAM
3-WEEKLY PROGRAM
4-DAILY PROGRAM (M-F)
5-PROGRAM REVIEW
Select 1–5
Press MENU to end
TODAY'S PROGRAM
Start --:--
Stop --:--
Channel -- Speed --
1-Press DIGIT keys to set hour/minutes
Press MENU to end
SINGLE PROGRAM
Date --/--
Start --:--
Stop --:--
Channel -- Speed --
1 Press DIGIT keys to set month/day
2 Press SELECT key
Press MENU to end
WEEKLY PROGRAM
Date --/--
Start --:--
Stop --:--
Channel -- Speed --
1-Press DIGIT keys to set month/day
2-Press SELECT key
Press MENU to end
PROGRAM 1
Date 8/26 MON
Start 8:00 PM
Stop 10:00 PM
Channel 5 Speed SP
- Single -
1-Press SET to review
2-Press CANCEL to erase
Press MENU to end
DAILY PROGRAM
Date --/--
Start --:--
Stop --:--
Channel -- Speed --
1-Press DIGIT keys to set month/day
2 Press SELECT key
Press MENU to end

Error Messages

The following error messages may appear on the VCR's message panel when you press the TIMER button to engage the Timer Standby mode. Here's why, and what you should do.

NO CASSETTE

- Displayed for 5 seconds and the Timer Standby mode is cancelled.

WHY: There is no cassette in the VCR.
WHAT TO DO: Insert a cassette. Press TIMER again.

NO PROGRAM

- Displayed for 5 seconds and the Timer Standby mode is cancelled.

WHY: There are no preset programs in memory.
WHAT TO DO: Check the programmed data and re-program it as necessary. Press TIMER again.

NO REC TAB

- Displayed for 5 seconds and the Timer Standby mode is cancelled.

WHY: The inserted cassette has its safety tab removed.
WHAT TO DO: Eject that cassette. Insert a cassette with its safety tab intact. Or cover the safety tab hole of the cassette with adhesive tape and re-insert it. Press TIMER again. ☞p.8.

For Timer-Recording (cont'd)

Other Messages

The following messages may also be encountered during timer-recording.

TIMER (with clock display)

WHY: The VCR is in the Timer Standby mode. This is the normal display you should see when you press the TIMER button.

TIMER REC

WHY: Normal display while timer-recording is in progress.

TAPE END

WHY: If this and "TIMER REC" are alternately displayed, it means that the end of the tape was reached while timer-recording was in progress. Therefore, the preset program may not be recorded in its entirety.

SET CLOCK

WHY: This means the clock must be set. It's displayed when time-keeping is terminated due to a power failure or because the VCR's power plug was pulled from the AC outlet.
WHAT TO DO: Set the clock. ☞p.9.

- If power was interrupted, it's also likely that all preset timer programming data has been erased. Please check and re-program as necessary.

On Checking And Cancelling Programs

Since executed programs are automatically cleared from memory (except those for daily and weekly serials), cases where the entire 8-event memory is full should be rare. If this should happen, when you select a programming function and open a data input screen, the screen will already be filled with data (instead of the normal input screen where the data items are blank). In such cases, check the preset programs and cancel one or more to make room for the new program(s) you wish to input.

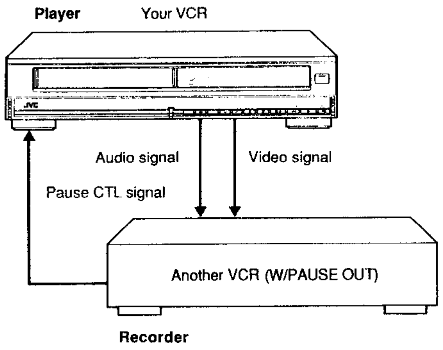
TO CANCEL A PROGRAM

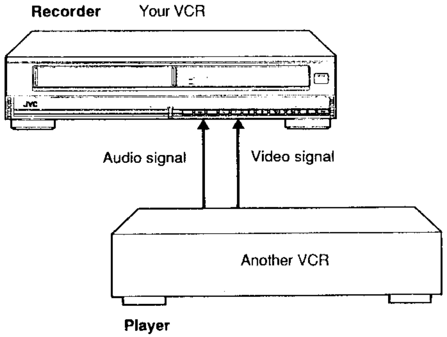
1. Press MENU.
2. Press the 1 key. (Program)
3. Press the 5 key. (Program Review)
4. Press SET to review preset programs.
5. Press CANCEL to erase the program displayed on the screen from memory.
   - Repeat steps 4 and 5 as necessary.
6. Press MENU to end.

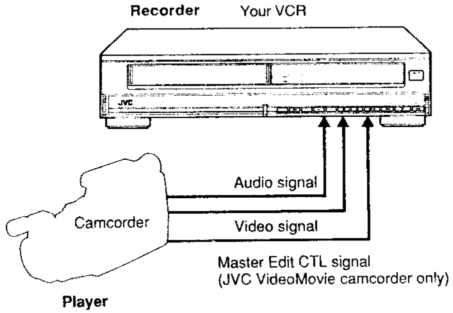
Some Facts On Timer Operation

- If the end of the tape is reached during timer-recording, the cassette is automatically ejected and VCR power is switched off with "TIMER REC" and "TAPE END" flashing alternately on the message display panel.
- When timer-recording is successfully completed, the VCR power is automatically switched off.
- Since the timer starts and stops recording based on the time being kept by the VCR's built-in clock, the clock's time must be accurate for correct timer-recording results.

For Editing







Editing To/From Another VCR

Your VCR can be used as either the recording deck or the source player when editing tapes. When used as the source player in combination with another video deck which is preroll-capable and equipped with a Pause Control Output terminal, your VCR's REMOTE PAUSE terminal can accept preroll commands for synchronized preroll editing.

PREPARATION

1. Connect the player's VIDEO OUT and AUDIO OUT connectors to the recorder's VIDEO IN and AUDIO IN connectors.

OPERATION

2. Set the recorder's SOURCE setting to AUX.
   - With this VCR model, press the digit key "0" on the remote control. "AUX" will appear instead of a channel number.
3. Put the player in the Play mode.
4. Put the recorder in the Record mode.

Swap Editing

Your VCR is equipped with a SWAP terminal. When combined with a swap-control-capable VCR such as the JVC HR-S10000U, editing will be made easier. For more information about swap connection and swap control, refer to the instruction manual of the swap-control-capable VCR.

Editing From A VideoMovie Camcorder

Tape-to-tape editing is also possible using a VideoMovie camcorder (equipped with playback facility) as the player and your VCR as the recorder. In this case, the VCR's REMOTE PAUSE terminal can be used to accept Master Edit Control commands from the camcorder.

PREPARATION

1. Connect the VideoMovie's AV OUT connector to the VCR's VIDEO IN and AUDIO IN connectors.
2. Connect the AV output cable's mini-plug to the REMOTE PAUSE terminal of the VCR.

- If the VideoMovie is equipped with the Master Edit Control system, you can control the VCR using the VideoMovie's controls. See VideoMovie's instruction manual for operating procedures.
- With this connection, you can also use the VideoMovie as a video camera for direct recording onto the VCR's tape. Put the VCR in Record-Pause and use the VideoMovie's start/stop trigger to start and pause recording. (For direct recording with a separate video camera, a camera adapter is necessary.)

List Of VCR Display Panel Messages

Displayed Message	When It Appears and What It Means
During Clock Set	
CLOCK SET	Clock Set mode is selected.
TIME 12:59 AM	"12:59AM" is input for the time.
M11/D30/Y91	"November 30, 1991" is input for the date.
During Program Set	
TODAY PROG	"Today's Program" menu is selected.
SINGLE PROG	"Single Program" menu is selected.
WEEKLY PROG	"Weekly Program" menu is selected.
DAILY PROG	"Daily Program" menu is selected.
DATE 12/31	"December 31" is input for the rec start date.
START 11:00AM	"11:00AM" is input for the rec start time.
STOP 12:30PM	"12:30PM" is input for the rec stop time.
CHANNEL 10	"10" is input as the channel to be recorded.
SPEED EP	"EP" is chosen as the recording speed.
During Channel Set	
CHANNEL SET	Channel Set mode is selected.
CHANNEL 10	"Channel 10" is scanned/input.
ADD	The channel is memorized/added.
SKIP	The channel is skipped/deleted.
During Normal Operation	
PLAY	Normal playback is in progress.
STOP	Stop mode has been engaged. Displayed for 2 seconds.
STILL	A still picture is being viewed.
FF	Fast-forwarding.
REW	Rewinding.
REC SP 10	Recording "Channel 10" in "SP".
REC SP 1:30	Recording with the Off Timer set to shut off in 1 hour 30 minutes.
PAUSE 10	Recording is paused.
TIMER REC	Timer-recording is in progress.
FWD SLOW	Forward slow motion is in progress.
REV SLOW	Reverse slow motion is in progress.
FWD SEARCH	Forward search is in progress.
REV SEARCH	Reverse search is in progress.
INDEX +9	Searching for the 9th index code in the forward direction.
INDEX −4	Searching for the 4th index code in the reverse direction.
INDEX MARK	Index code is being marked.
IINDX REPEAT	Segment Repeat playback is in progress.
FULL REPEAT	Full Repeat playback is in progress.
CHANNEL 10	Channel 10 is being received.
AUX INPUT	Auxiliary input source is being received.
EJECT	Cassette is being ejected.

NOTES:

This list represents the various types of messages your VCR is capable of generating. Actual messages displayed by your VCR (esp. if date, time, channel, tape counter reading, or other variables are involved) will differ slightly from those listed here.

Displayed Message	When It Appears and What It Means
During Next Function Memory	
REW – OFF OFF	Will rewind to the beginning and then shut off automatically.
REW – PLAY PLAY	Will rewind to the beginning and then start playback automatically.
REW – TIMER TIMER	Will rewind to the beginning and then enter the Timer mode automatically.
Clock and Counter Displays	
4:30:15	Tape counter reading of "4 hours, 30 minutes, 15 seconds".
M 4:30:15	Same as above with Counter Memory ON.
REMAIN 2:24	2 hours and 24 minutes of recording time remaining on the tape.
12/31 10:30AM	It is presently December 31, 10:30AM. (Standard date/time display when VCR power is turned off)
TIMER 10:30AM	It is 10:30AM and the Timer mode is engaged.
SET CLOCK	The clock is not set. Please set it.
TIMER REC TAPE END	End of tape was reached during timer-recording.
Picture Control Displays	
ENHANCED	"Enhanced" setting is selected.
TAPE DUB	"Tape Dubbing" setting is selected.
SOFT PIX	"Soft Picture" setting is selected.
SHARP PIX	"Sharp Picture" setting is selected.
OFF	Scene Control function is turned OFF.
Error Messages	
NO CASSETTE	There is no cassette in the VCR.
NO REC TAB	The cassette's safety tab is removed.
NO PROGRAM	No program has been preset.
Other Messages	
GOOD MORNING GOOD AFTERNOON GOOD EVENING	Automatic greetings when the VCR is turned on.
GOOD-BYE GOOD NIGHT	Automatic greetings when the VCR is turned off.

Dimmer

This function lets you make the VCR's display panel less bright.

On the remote control:

1. Press MENU.
2. Press the 2 key. (Function)
3. Press the 3 key. (Dimmer)
4. Press SET to choose ON.
5. Press MENU to end.

■ Reset Dimmer to OFF when you wish to release the dimmer function.

DIMMER
OFF
● ON
Press SET for choice
Press MENU to end

Helpful Terms And Information

The following glossary is for your convenience in helping you better understand your VCR and its operation.

Auto Channel Set: Part of the "TUNER SET UP" function. When used, the VCR runs through (scans) all the channels on the VCR, automatically placing all channels receivable in your area into the VCR's memory.

AV: Short for Audio/Video. Often refers to separate audio (sound) and video (picture) signals which, when combined, make up a program.

AV Connection: Type of VCR-to-TV connection in which the VCR's AUDIO OUT and VIDEO OUT terminals are connected to the TV's AV IN terminals. Audio and video signals are sent separately and directly to the TV without having to modulate them into RF signals.

Bands: Four settings are available on the VCR so you can receive TV programming from just about any broadcaster.

TV:
Use this setting to receive VHF (Very High Frequency) and UHF (Ultra High Frequency) channels only. These are received by the tuner on channels 2 thru 13, and 14 thru 69, respectively.

CATV:
Short for Community Antenna TV, and commonly referred to as simply "Cable TV". Use this setting to receive channels on cable.

HRC:
Use this setting if your particular cable system is HRC (Harmonically Related Carrier).

ICC:
Use this setting if your particular cable system is ICC (Incremental Coherent Carrier).

Cassette Adapter: Provided with most Compact VHS camcorders, and also available optionally, it allows VHS-C cassettes to be played (and recorded) on VHS VCRs just like full-size VHS cassettes.

Editing: Refers to dubbing or tape-to-tape editing (in which the contents of a tape in one video unit are copied to another tape in a second video unit), and to creative editing (in which video programming is actually modified to create something different from the original).

FDP: Short for Fluorescent Display Panel, which is the type of display panel used on this VCR.

Head: An electronic component which "writes" or "reads" video signals on the tape.

Head Drum: A drum-shaped cylindrical assembly on which the video heads are located. It rotates at high speed, allowing the heads to "write" and "read" diagonal signal tracks on the video tape.

Hi-Fi VHS Stereo Sound: Achieves high-quality sound by using rotary FM-audio heads which scan the tape helically with a high writing speed - just like video heads — in both recording and playback.

HQ (High Quality): An enhancement feature in the VCR circuitry which provides greater picture detail.

Index Code: An electronic code "written" on the tape's control track when recording is started. Index codes can be used to facilitate program search, and have absolutely no effect on recorded pictures or sound.

Master Edit Control System: A properly-equipped VideoMovie camcorder sends a control signal to the VCR via the REMOTE PAUSE terminal, "telling" the VCR to release the Pause mode.

Mode: The status of the VCR (the operating feature being used) at any given time. (e.g. The tape is being rewound = the VCR is in the Rewind mode.)

On-Screen Menu System: VCR functions are easier to operate because they can be chosen, and required data can be input, while viewing special screens displayed on your TV.

Preroll: The VCR backtracks the tape slightly from its original position in Pause or Still so that when Pause/Still is released, the VCR is able to "roll" the tape and get it up to its most stable speed by the time Record or Play is resumed.

Preroll Editing: When two properly-equipped VCRs are used in editing, the recording deck sends a control signal to the playback deck via the REMOTE PAUSE terminal, "telling" it to release the Still mode after the recording deck has completed preroll.

Realtime Counter: The VCR's tape counter shows tape time precisely in hours, minutes and seconds (unlike simple sequential counters). The counter resets automatically when a cassette is inserted.

RF Coaxial Cable: Black insulated round cable used to connect the VCR to the TV.

RF Connection: Type of VCR-to-TV connection in which the VCR's RF (Radio Frequency) OUT terminal is connected to the TV's ANTENNA terminal. The VCR essentially "broadcasts" the program to your TV on channel 3 or 4.

Special Effects: Playback modes other than normal-speed forward playback; includes still playback (stop motion), slow motion, and high-speed visual search.

Super VHS: A version of the VHS format which was developed to provide pictures with over 400 lines of horizontal resolution. This VCR can handle standard VHS signals only, and cannot record or play back Super VHS signals.

Tape Speeds: This determines how fast the tape travels during a recording.

SP (Standard Play):
Fast tape speed. Provides recording time of about 2 hrs. per T-120 cassette, and 2 hrs. 40 mins. per T-160 cassette. Most prerecorded VHS software is recorded in SP.

EP (Extended Play):
Slow tape speed. Provides recording time of about 6 hrs. per T-120 cassette, and 8 hrs. per T-160 cassette. Useful for multiple-program recording on a single cassette.
Some manufacturers sell VCRs with an intermediate LP (Long Play) speed, which is not officially recognized as a VHS standard. This JVC VCR can play back LP-recorded tapes, but will not record in that tape speed.

Timer-Recording: Using the VCR's built-in clock/timer for automatic, unassisted start and stop of recording.

Tracking: The video head's ability to accurately "read" recorded signals (tracks) without deviating. When tracking deviation occurs, it appears on the screen as vertical jitter and grainy streaks. The Digital Tracking function on this VCR is an extremely accurate automatic tracking system which greatly reduces the possibility of deviations.

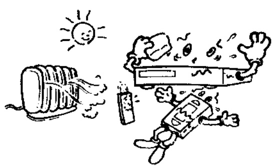
Tuner: The part of the VCR that receives TV signals off the air and via cable. The Frequency Synthesized Tuner of this VCR is highly accurate, and is capable of receiving up to 181 channels.

VCR: Short for Videocassette Recorder.

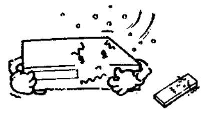
VHS: The video format of this VCR, and the video format most widely used throughout the world.

Precautions

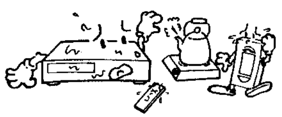
VCR, Remote Control, And Cassette Care



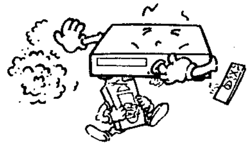
Avoid extreme heat and direct sunlight



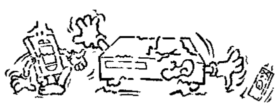
Avoid extreme cold



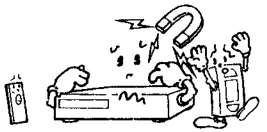
Avoid extreme humidity



Avoid dust

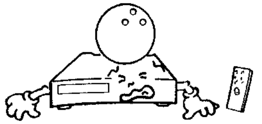


Avoid places subject to vibrations

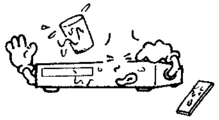


Avoid strong magnetic fields

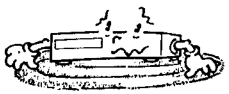
Do not block the VCR's ventilation openings



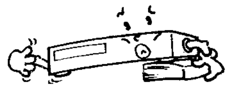
Do not place anything heavy on the VCR or remote control



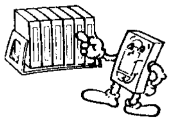
Do not place anything which might spill on top of the VCR or remote control



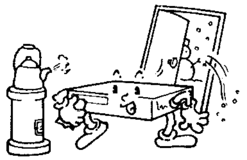
Do not place the VCR on cushions, pillows, or thick carpeting



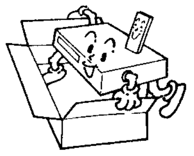
Use the VCR in a stable, horizontal position only



Place cassettes in cassette cases and store vertically



Beware of moisture condensation
Moisture in the air will condense on the VCR when you move it from a cold place to a warm place, or under extremely humid conditions — just as water droplets form on the surface of a glass filled with cold liquid. Moisture condensation on the head drum will cause damage to the tape. In conditions where condensation may occur, keep the VCR's power turned on for a few hours to let the moisture dry.



When transporting
- Be sure to remove cassette from VCR before packing
- Avoid violent shocks to the VCR during packing and transport

Specifications

GENERAL

Power requirement	AC 120 V∿, 60 Hz
Power consumption	24 W
Temperature	
Operating	5°C to 40°C (41°F to 104°F)
Storage	–20°C to 60°C (–4°F to 140°F)
Humidity	
Operating	35% to 80%
Storage	5% to 80%
Operating position	Horizontal only
Dimensions (WxHxD)	435 x 94 x 335 mm (17-3/16" x 3-3/4" x 13-1/4")
Weight	5.2 kg (11.5 lbs)
Format	VHS NTSC standard with Hi-Fi audio
Tape width	12.65 mm
Tape speed (SP)	33.35 mm/sec (1-5/16 ips)
(EP)	11.12 mm/sec (7/16 ips)
Maximum recording time (SP)	160 min. with T-160 video cassette
(EP)	480 min. with T-160 video cassette

VIDEO

Signal system	NTSC-type color signal and EIA monochrome signal, 525 lines/60 fields
Recording system	Rotary two-head helical scan system with slant double-azimuth combination video heads
Input	0.5 to 2.0 Vp-p, 75 ohms, unbalanced
Output	1.0 Vp-p, 75 ohms, unbalanced
Signal-to-noise ratio	45 dB (Rohde & Schwarz noise meter) with PICTURE CONTROL set to OFF
Horizontal resolution	240 lines

AUDIO

Input	–8 dBs, more than 50 k-ohms, unbalanced
Output	–8 dBs, less than 1 k-ohm, unbalanced (100 k-ohms, load)

NORMAL AUDIO

Recording system	Longitudinal track
No. of channels	1 normal audio channel
Frequency response	70 Hz to 10,000 Hz

Hi-Fi AUDIO

Recording system	Deep-layer recording system conforming to stereo Hi-Fi VHS standard
No. of channels	2 Hi-Fi audio channels
Frequency response	20 Hz to 20,000 Hz
Dynamic range	More than 90 dB
Wow and flutter	Less than 0.005% WRMS

TUNER

Tuning system	Frequency synthesized tuner
Channel coverage	
(VHF)	Channels 2–13
(UHF)	Channels 14–69
(CATV)	113 Channels
RF output	Channel 3 or 4 (switchable; preset to Channel 3 when shipped) 75 ohms, unbalanced

TIMER

Clock reference	Quartz-crystal
Program capacity	1-year programmable timer/ 8-programs

ACCESSORIES

Provided accessories	RF cable (F-type), Infrared remote control unit, "AAA" battery x 2

E. & O.E. Specifications shown are for SP mode unless otherwise specified.
Design and specifications subject to change without notice.

In Case Of Difficulties

POWER AND TAPE TRANSPORT PROBLEMS

Symptoms	Check points
No power is applied to the VCR.	● Is the power cord disconnected? — Connect it.
Clock is functioning properly, but the VCR cannot be powered.	● Is "TIMER" displayed on the display panel? — Press the TIMER button to extinguish the display.
Tape stops during rewind or fast-forward.	● Is the COUNTER MEMORY button pressed? — Press again to make "M" disappear from the display panel.
Tape will not rewind or fast-forward.	● Is the tape already fully rewound or fast-forwarded? — Check the cassette.

RECORDING PROBLEMS

Symptoms	Check points
Recording cannot be started.	● Is a cassette loaded? ● Is the safety tab on the cassette removed? — Reseal the slot with adhesive tape.
TV broadcasts cannot be recorded.	● Has "AUX" been selected? — Set to the desired channel.
Tape-to-tape editing is not possible.	● Is the camcorder or VCR correctly connected? ● Are all necessary power switches turned ON? ● Has "AUX" been selected? — Set to "AUX".
Camera recording is not possible.	● Is the camcorder correctly connected? ● Has "AUX" been selected? — Set to "AUX".
Timer recording is not possible.	● Have you set the clock correctly and programmed the timer correctly? — Check once again. ● Is "TIMER" displayed on the display panel? — If not, press the TIMER button to display "TIMER".

PLAYBACK PROBLEMS

Symptoms	Check points
Playback picture does not appear while the tape is running.	● If you are using RF OUT connection, is the TV receiver's channel selector set to the correct video channel? — Set it to the RF converter channel (3 or 4). (☞p.7) ● If you are using AV connection, is the TV receiver set to the AV mode? — Set it to the AV mode.
Playback is repeated.	● Is "REPEAT" on the VCR SET UP menu set to either "FULL" or "SEGMENT"? — Set it to "NO".
Noise appears during visual search.	● This is normal.
Noise appears during playback.	● Is the automatic tracking mode engaged? — Try manual tracking. (☞p.20)
Playback picture is blurred or interrupted while TV broadcasts are clear.	● Video heads may be dirty. — Head cleaning is necessary. Consult your JVC dealer. (☞p.34)

Hi-Fi AUDIO PROBLEMS

Symptoms	Check points
Breaks are noticeable in Hi-Fi audio reproduction.	● Is the automatic tracking mode engaged? — Try manual tracking. (☞p.20)
Hi-Fi soundtrack cannot be reproduced.	● Is "AUDIO MONITOR" on the FUNCTION menu set to "NORM"? — Set it to "HI-FI".

OTHERS

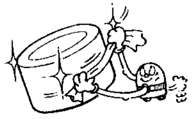
Symptoms	Check points
Clock setting is not possible.	● Is "TIMER" displayed on the display panel? — Press the TIMER button to extinguish the display.
Some channels are skipped over when scanning channels.	● Those channels are preset to be skipped over. If you need them, restore them. (☞p.17)
Channel cannot be switched.	● Is recording in progress? — Press the PAUSE/STILL button, change the channel, and press the PLAY button.
Snowy picture on screen when viewing TV programs while recording another program.	● Is the VIDEO indicator lit? — Press the TV/VIDEO button so that the indicator extinguishes.
Remote control does not function.	● Are the batteries discharged? — Replace with new ones.
Index Search does not function properly.	● Adjacent index codes may be too close to each other.

ATTENTION:

This recorder contains microcomputers. External electronic noise or interference could cause malfunctioning. In such cases, switch the power off and unplug the power cord. Then plug it in again and switch on. Take out the cassette. After checking the cassette, operate the unit as usual.

Special Note On Head Cleaning

Accumulation of dirt and other particles on the video heads may cause the playback picture to become blurred or interrupted. Although this model is equipped with a built-in head cleaner which automatically cleans the heads, reducing the likelihood of dirty heads, if such troubles are encountered please consult the nearest JVC dealer.



Auto Head Cleaner

A built-in head cleaner automatically cleans the video heads and head drum whenever a tape is loaded or unloaded to reduce head clogging.

SECTION 1
DISASSEMBLY AND MECHANISM ADJUSTMENTS

1.1 DISASSEMBLY

1.1.1 Top cover

1. Refer to Fig. 1-1-1 and set for the EJECT (Stop) mode and disconnect VCR from AC power.
2. Take out 4 screws Ⓐ . To remove the top cover, slide in direction of arrow and lift away.

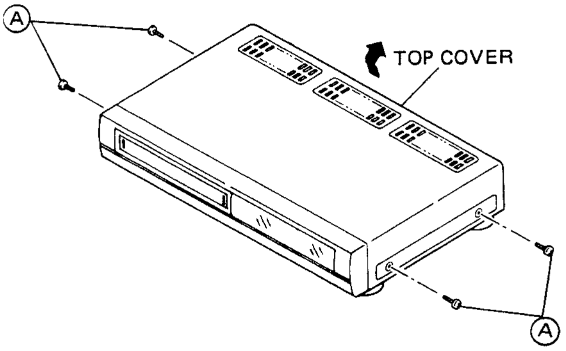


Fig. 1-1-1

1.1.2 Front panel assembly

1. Remove the top cover.
2. Carefully disengage 3 tabs Ⓑ of the front panel assembly from the upper side of the chassis.
3. Refer to Fig. 1-1-2 and pull the front panel assembly forward you to disengage 3 tabs Ⓒ of the front panel assembly from the bottom side of the chassis, then remove the front panel assembly.

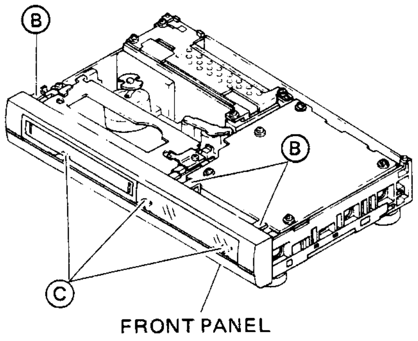


Fig. 1-1-2

1.1.3 Bottom cover

1. Remove the top cover.
2. Refer to Fig. 1-1-3 and take out 5 screws Ⓓ and disengage 4 claws Ⓔ from the bottom of the chassis.
3. Disengage the bottom cover from the bottom of the chassis slide indirection of arrow and disengage 3 tabs Ⓕ.

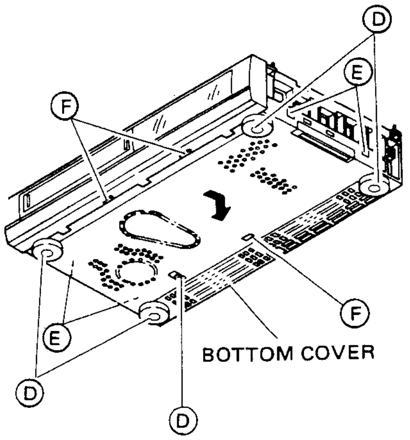


Fig. 1-1-3

1.1.4 Main board assembly

1. Remove the top cover.
2. Refer to Fig. 1-1-4 and take out 5 screws Ⓖ from main board assembly.
3. Remove the main board assembly in the upward direction.

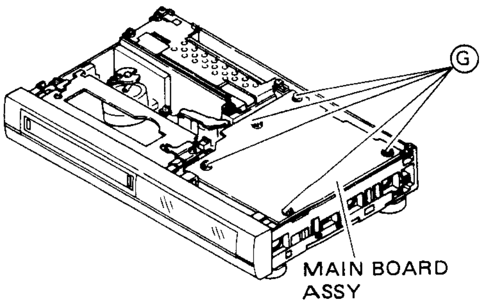


Fig. 1-1-4

1.1.5 Cassette housing

1. Remove the top cover and main board assembly.
2. Refer to Figs. 1-1-5 and 1-1-6.
   Take out 4 screws Ⓗ that secure the cassette housing. Disengage 3 tabs Ⓝ of the front panel and pull the front panel forward where it does not interfere with removing the cassette housing.
3. Remove the cassette housing in the upward direction.

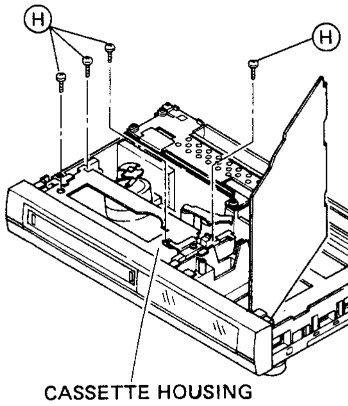

H
H
CASSETTE HOUSING

Fig. 1-1-5

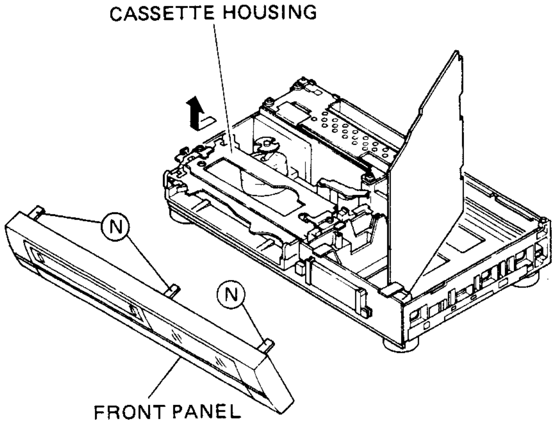

CASSETTE HOUSING
N
N
FRONT PANEL

Fig. 1-1-6

1.1.6 Cassette housing installation

1. On the main deck, observe the positional relationships of the parts indicated in Fig. 1-1-7.
   If necessary, turn the loading motor by hand to obtain these positions.

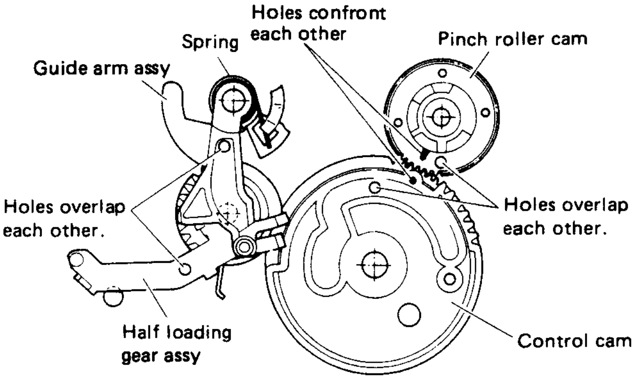

Holes confront each other
Spring
Pinch roller cam
Guide arm assy
Holes overlap each other.
Holes overlap each other.
Half loading gear assy
Control cam

Fig. 1-1-7

2. Refer to Fig. 1-1-8 and confirm that the clutch is engaged.
   If necessary, press the lever indicated by the arrow to where the clutch is locked.

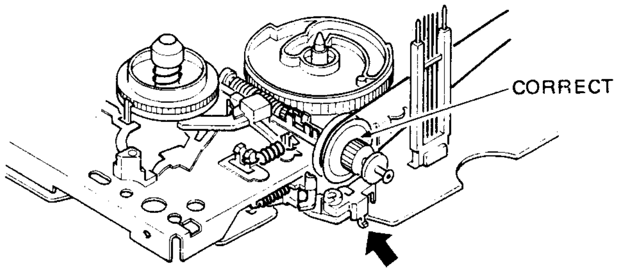


Fig. 1-1-8

3. Check that the cassette housing is in the eject state (internal holder of the cassette housing is locked in raised position).
   Set the cassette housing into place and secure with 4 screws.
4. Install the front panel as shown in Fig. 1-1-9 and re-engage the tabs. Supply power and use a spare cassette to check for normal loading and eject operations.

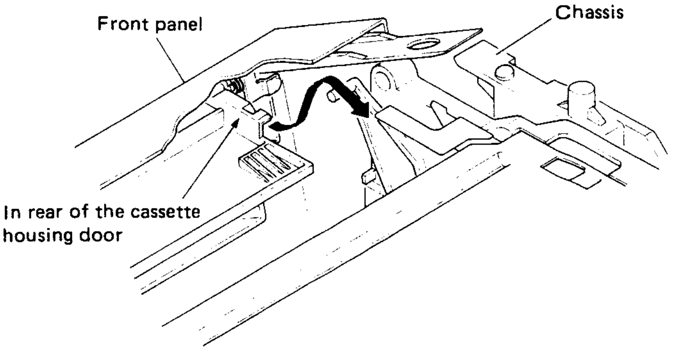
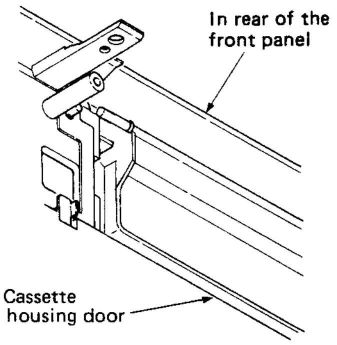

Front panel
Chassis
In rear of the cassette housing door

Fig. 1-1-9

5. Disconnect VCR from power, then reinstall the main board assembly and top cover.

1.1.7 Cassette housing door

1. Remove the top cover and front panel assembly.
2. Refer to Fig. 1-1-10, with a lift of cassette housing door by hand, bend center of the cassette housing door toward you, then pull out the left end from the cassette housing.
3. Refer to Fig. 1-1-10 and use care regarding the torsion spring, then pull out the right end of the cassette housing door to move it.


In rear of the front panel
Cassette housing door

Fgi. 1-1-10

1.1.8 Main-deck

1. Remove the top cover, front panel assembly and main board assembly.
2. Refer to Fig. 1-1-11 and take out 3 screws Ⓙ from the main-deck assembly.
3. Remove the main-deck assembly in the upward direction and disconnect a connector CN1 from the DECK TERMINAL board, connectors CN1, CN2 from the Pre/Rec board, connector CN1 from the A/C head board, connector CN1 from the Loading MDA board and connector CN1 from the Drum MDA board.

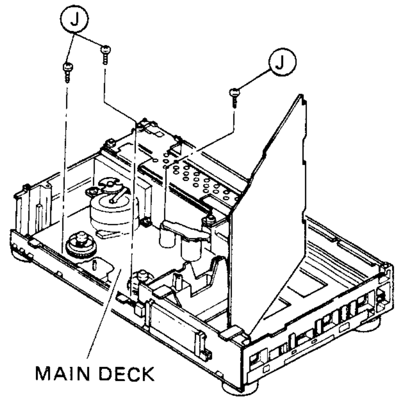


Fig. 1-1-11

1.1.9 Video unit board assembly

1. Remove the top cover and remove the main board assembly as shown in Sec. 1.1.4.
2. Refer to Fig. 1-1-12 and unsolder the video unit board assembly from main board assembly.
3. Remove the video unit board assembly in the downward direction.

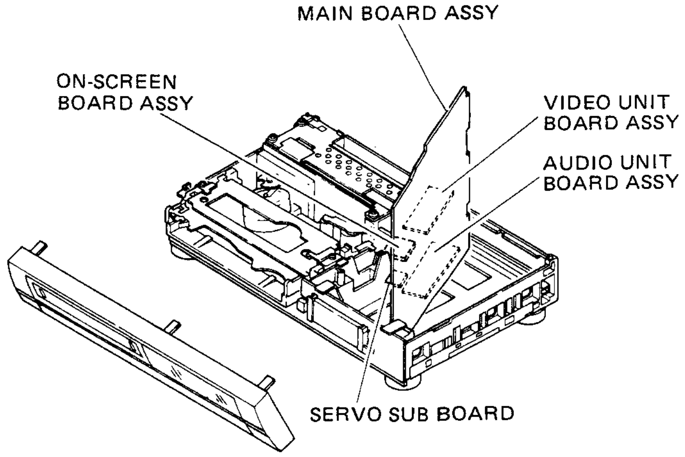

MAIN BOARD ASSY
ON-SCREEN BOARD ASSY
VIDEO UNIT BOARD ASSY
AUDIO UNIT BOARD ASSY
SERVO SUB BOARD

Fig. 1-1-12

1.1.10 Switching regulator board assembly

1. Remove the top cover.
2. Refer to Fig. 1-1-13 and take out 4 screws Ⓜ from the switching regulator board assembly.
3. Remove the switching regulator board assembly in the upward direction.

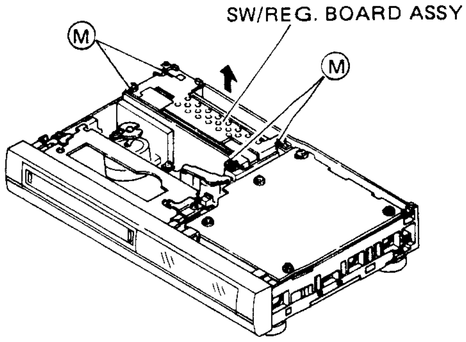

SW/REG. BOARD ASSY
Ⓜ
Ⓜ

Fig. 1-1-13

1.2 MECHANISM ADJUSTMENTS

1.2.1 Precautions

1. Disconnect mainframe from AC power before soldering.
2. Avoid imparting stress to wires when disengaging connectors.
3. Determine and correct the cause of difficulty before proceeding to adjustments. Do not disturb settings unnecessarily.
4. Use care not to damage tabs, claws, etc. during repairs.
5. Install the cassette housing assembly only when the mechanism is in the Eject or Stop mode position. In the Eject mode, the internal holder of the housing is fully raised. This is fully lowered in the Stop mode.
6. When installing the front panel assembly, be sure to engage the housing door with the door lever of the cassette housing assembly. If this is omitted, the door will not open at Eject and the cassette cannot be removed.

1.2.2 Check without cassette housing

Mechanism operations can be observed easily by removing the cassette housing assembly. Note the following.

1. Disable the photo transistor sensor (END SENSOR) on the main-deck by applying an opaque cover.
2. Connect pins 2 and 3 of Main board connector CN601.
3. Select the desired modes with the operation buttons. However, notice that without tape, setting for the reverse direction modes produces the Stop mode after a few seconds due to absence of the reel sensor output.

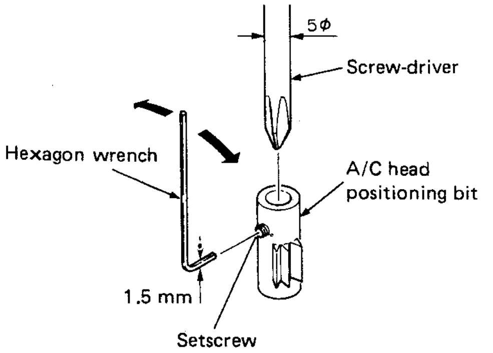


Fig. 1-2-1 A/C head positioning tool

1.2.3 Manually removing cassette tape

In event of electrical system failure that prevents the tape from being unloaded, the tape can be removed manually by the following procedure. Refer to Figs. 1-3-1, 1-3-2 and 1-3-3.

1. Disconnect power cord from AC outlet.
2. Turn the loading motor by hand so that the control cam rotates clockwise. This retracts the pole base assembly to the unloading position.
3. Continue turning to where the guide arm and half loading gear assemblies shift to beneath the cassette.
4. Turn the clutch assembly at the rear of the deck to absorb slack tape within the cassette.
5. Again turn the loading motor in the same direction to raise the cassette and remove it.

1.2.4 Test equipment

The following special tools and fixtures are required for mechanism adjustment.

1. Alignment tapes : MH-1 and MH-1L
   Stairstep signal is employed for interchangeability checks and adjustments.
2. Torque gauge : PUJ48075-2
   Measures tape take-up torque.
3. Back tension cassette gauge : PUJ48076-2
   Measures tape tension at the supply side.
4. A/C head positioning bit : PTU94010
   - Shifts the head base for adjusting the control head position.
   - **The installation of a A/C head positioning bit on the screw-driver.**
     Refer to Fig. 1-2-1. Set screw-driver into the A/C head positioning bit where it does not interfere with adjusting the A/C head adjusting boss (position the screw-driver point 6 ± 2 mm from point of the A/C head positioning bit). Slightly tighten the setscrew by hexagon-wrench (1.5 mm).
5. Roller driver : PTU94002
   Turns the guide roller for adjusting FM linearity.
6. Presetting unit: PTU94008
   Use for EP auto tracking preset adjustment.

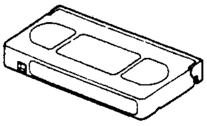
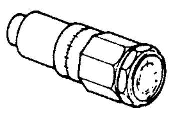
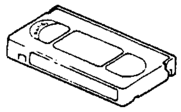
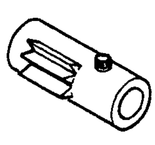
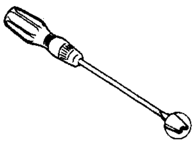
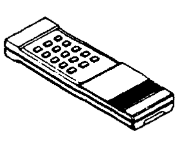
1 Alignment tapes	2 Torque gauge	3 Back tension cassette gauge	4 A/C head positioning bit	5 Roller driver	6 Presetting unit
					

Fig. 1-2-1 Test equipment

1.3 MAIN MECHANISM PARTS

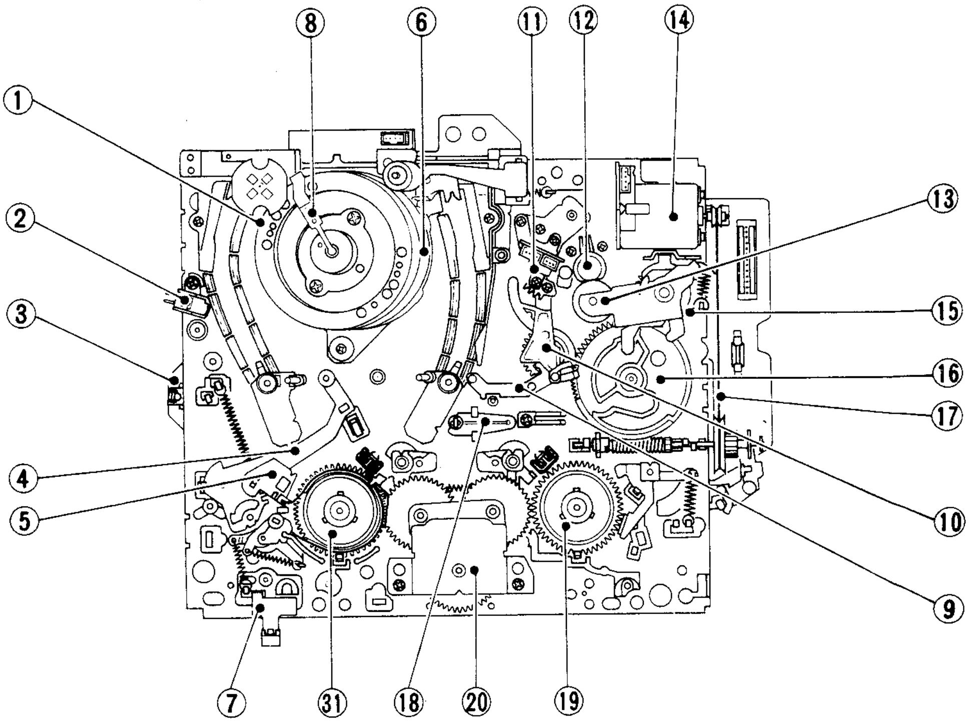

⑧
⑥
⑪
⑫
⑭
①
⑬
②
⑮
③
⑯
⑰
④
⑤
⑩
⑨
⑦
㉛
⑱
⑳
⑲

Fig. 1-3-1 Top view of main-deck

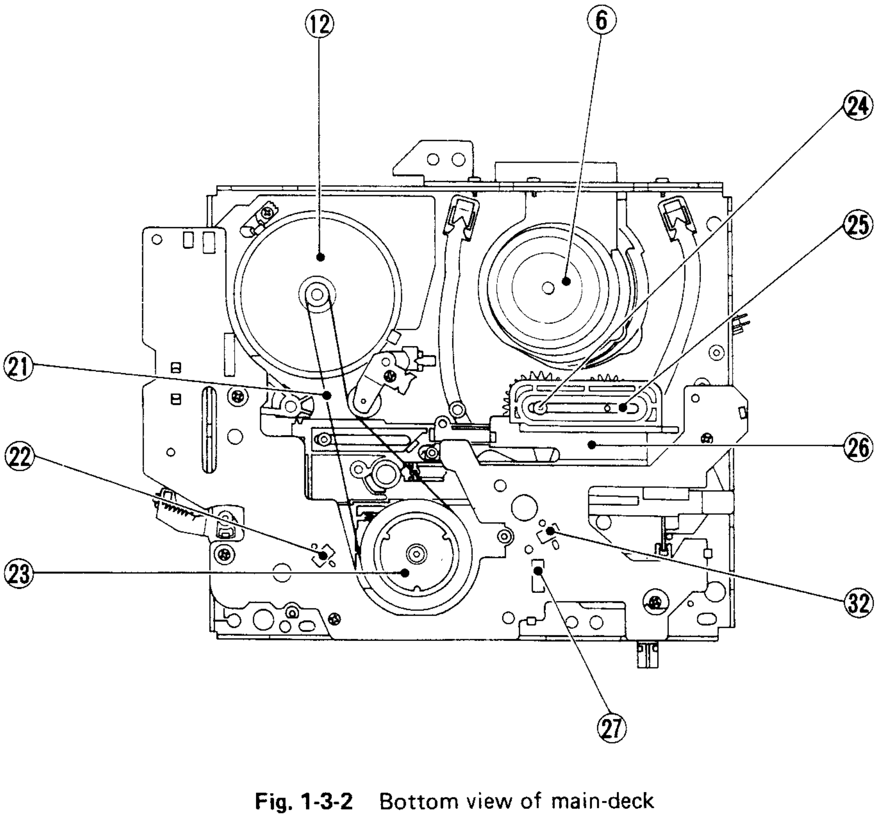

⑫
⑥
㉔
㉕
㉑
㉖
㉒
㉓
㉜
㉗

Fig. 1-3-2 Bottom view of main-deck

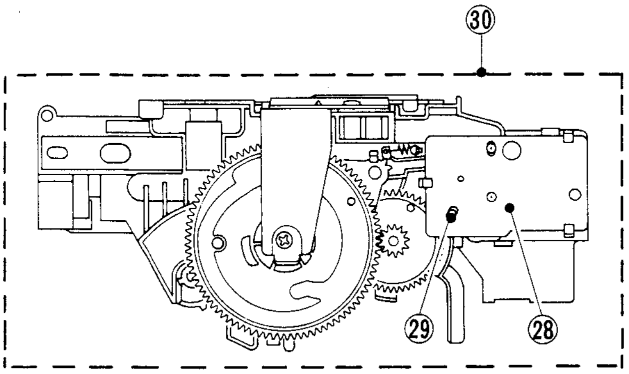


Fig. 1-3-3 Side view of cassette housing

A. Cleaning

Periodic cleaning of the tape transport system is desirable, but ordinarily not feasible in practice. Therefore, perform cleaning when a set is brought in for repairs or maintenance. Contamination of the video heads, tape guides and brushes can detract from playback picture quality and in extreme cases, even damage the tape. For cleaning, use a fine-mesh cotton cloth (about the texture of a white dress-shirt) moistened in alcohol.

- To clean the video heads, press the moistened cloth gently against the upper drum with fingertip and turn the drum by hand.
- Do not use a vertical stroke, as this may damage the heads.

B. Lubrication

Oil and grease do not normally require periodic replenshing. Apply only when replacing lubricated parts (also clean and replace lubrication of mating parts if soiled).

For parts and points to apply oil and grease, refer to the exploded views of the mechanism assembly.

Before oiling, clean with alcohol.
Apply one or two drops of oil. Avoid excess oil.

1. Table 1-1 indicates the oil and grease used in this set. Use these or recommended locally available equivalents.

Category	Part No.
Oil	COSMO-HV56
Grease	KANTO-G-31KAV

Table 1-1

2. Grease is not required for a replacement cassette housing assembly, as this has been applied at the factory.

Note: *Stir grease that has been stored for an extended period.*

C. Main mechanical parts

See Fig.s 1-3-1, 1-3-2 and 1-3-3.

No.	Symbol	Parts Name	See Section
1	M32A	Upper drum assy	1.5.1
2	M44	Full erase head	
3	51Q1	End sensor	
4	M41	Tension arm assy	1.5.4
5	M42	Tension band assy	1.5.4
6	M32C	Lower drum motor assy	1.5.2
7	M461	REC safety switch	
8	M32D	Brush assy	
9	M449	Half loading gear assy	1.5.5
10	M447	Guide arm assy	1.5.5
11	M48	A/C head	1.5.3
12	M422	Capstan motor	
13	M442	Pinch roller arm assy	
14	M434	Loading (Mode) motor assy	
15	M446	Pinch roller cam	1.5.5
16	M438	Control cam	1.5.5
17	M437	Loading belt	
18	M460	LED holder (D1)	
19	M430	Reel disk (take-up)	
20	M424	Idler gear unit	
21	M429	Timing belt	
22	51PS1	Take up reel sensor (PHS1)	
23	M426	Clutch unit	1.5.6
24	M433	Take up loading arm assy	1.5.7
25	M432	Supply loading arm assy	1.5.7
26	M439	Plate assy	1.5.7
27	M462	Slide switch (S3)	
28	56PHS3	Cassette sensor (PHS3)	
29	56Q2	Start sensor (Q2)	
30	M36	Cassette housing assy	
31	M470	Reel disk (supply)	
32	51PS2	Supply reel sensor (PHS2)	

- Symbol interpretation example

M32A: M — Exploded view symbol; 32A — Ref. No.

56 Q2: 56 — Board No.; Q2 — Ref. No.

1.4 INSPECTION AND MAINTENANCE

This product employs rotary and moving parts which wear out in the course of usage. Periodic inspection, cleaning, lubrication and maintenance are therefore important for ensuring maximum performance. Worn parts must also be replaced at when required.

1.4.1 Suggested servicing schedule for main components

The following table indicates the suggested period for such service measures as cleaning, lubrication and replacement. In practice, the indicated periods will vary widely according to environmental and usage conditions. However, the indicated components should be inspected when a set is brought for service and the maintenance work performed if necessary.

Also note that rubber parts may deform in time, even if the set is not used.

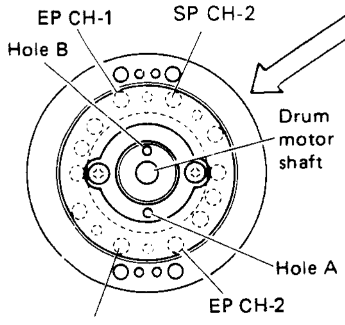
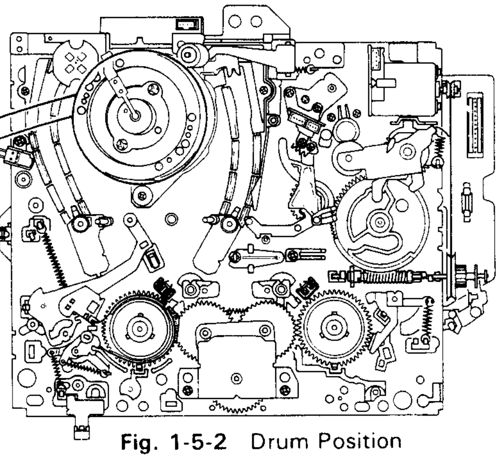
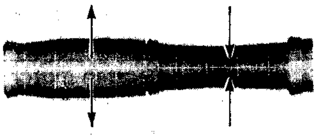
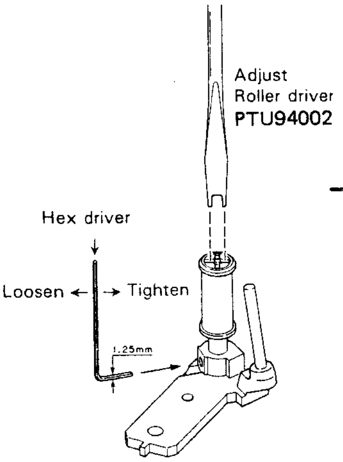
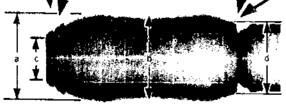
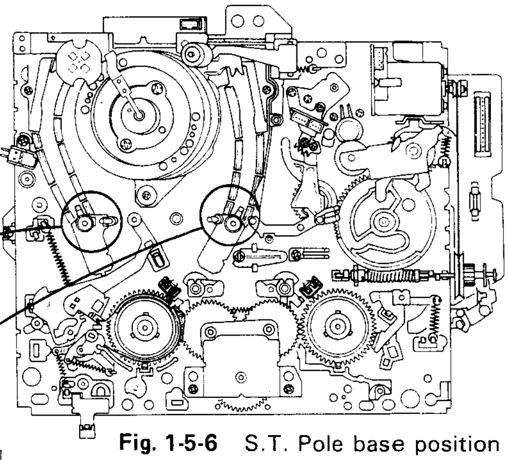
System	No.	Parts Name	Symbol No.	Periodic servicing schedule (operation hours)								
				250	500	750	1000	1250	1500	1750	2000	Overall
Tape Transport	1	Upper drum	M32A	★	★	☆	○	○	○	○	○	●
	11	A/C head	M48	★	★	★	○	○	○	○	○	●
	13	Pinch roller	M442	★	★	★	○	○	○	○	○	●
	2	Full erase head	M44	★	★	★	○	○	○	○	○	●
	4	Tension arm	M41									●
	6	Lower drum	M32C				○	○	○	○	○	●
	12	Capstan (shaft)	M422	★	★	★	★	★	★	★	★	●
	9	Half loading gear	M449									●
	10	Guide arm	M447									●
Drive	12	Capstan motor	M422				○	○	○	○	○	●
	17	Loading Belt	M437				○	○	○	○	○	●
	21	Reel Belt	M424				○	○	○	○	○	●
	19	Take-up reel disk	M430				○	○	○	○	○	●
	31	Supply reel disk	M470				○	○	○	○	○	●
	23	Clutch assy	M426								○	●
	14	Loading motor	M434				○	○	○	○	○	●
		Worm clutch assy	M436								△	●
		Plate assy	M439								△	●
Others	5	Tension band	M42				○				○	●
	8	Brush	M32D				○				○	●

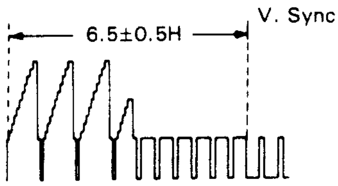
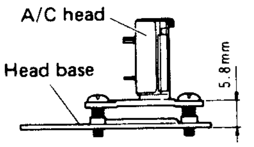
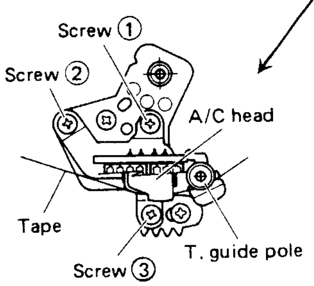
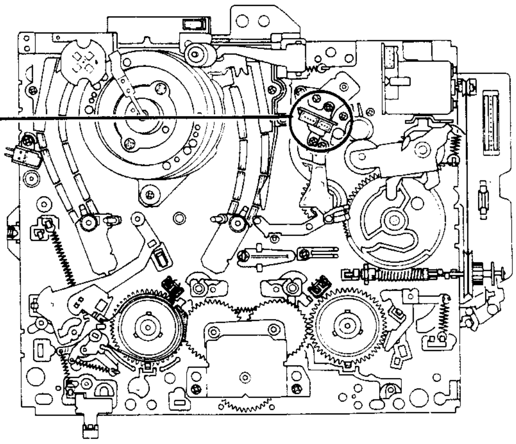
★ : Cleaning
☆ : Cleaning (or Replacement if necessary)
△ : Lubrication
No: Refer to Main mechanical parts

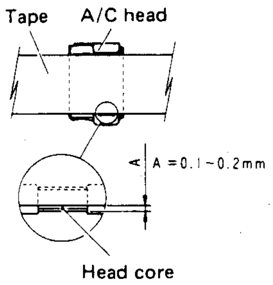
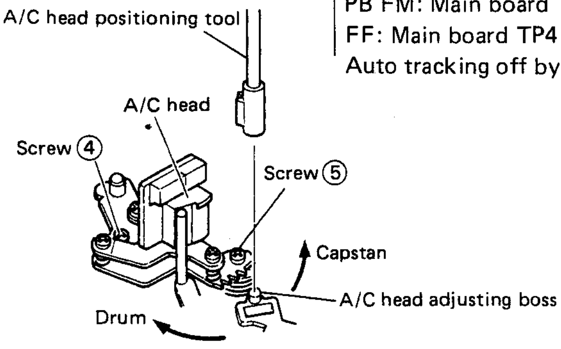
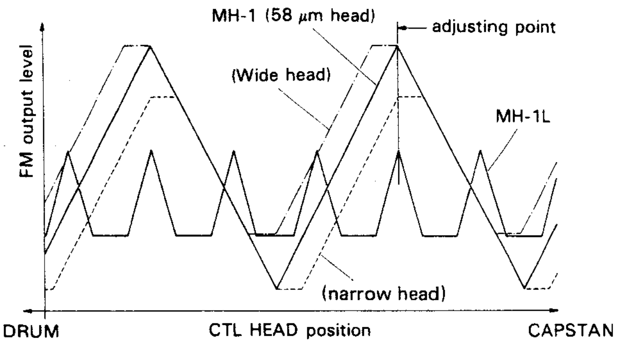
▲ : Lubrication (or Replacement if necessary)
● : Replacement
○ : Inspection or Replacement if necessary

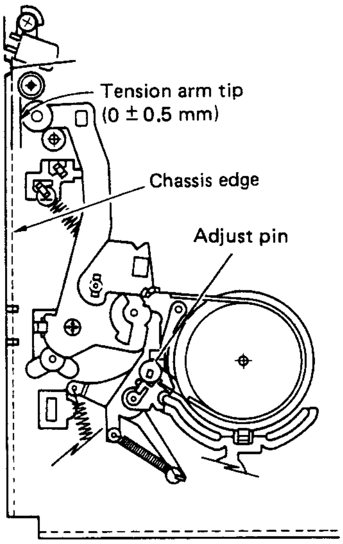
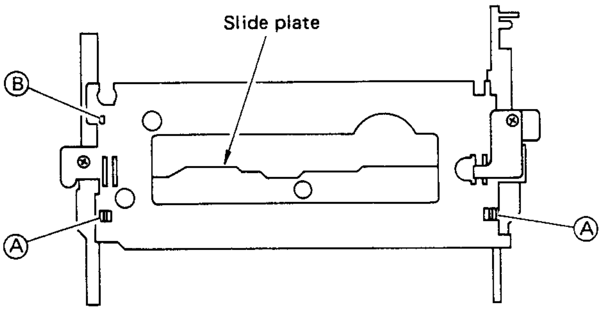
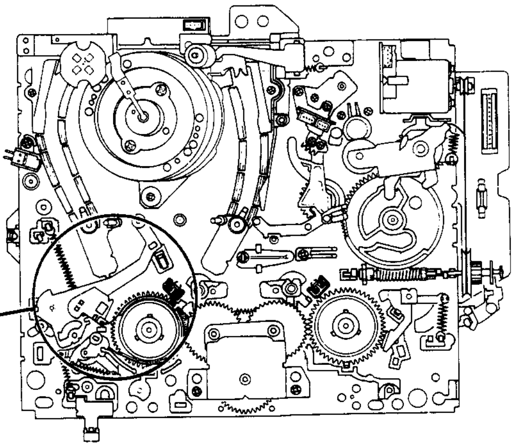
Table 1-4-1 Approximate maintenance schedule

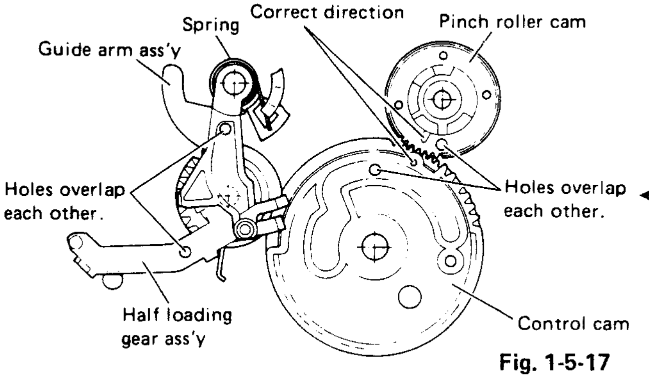
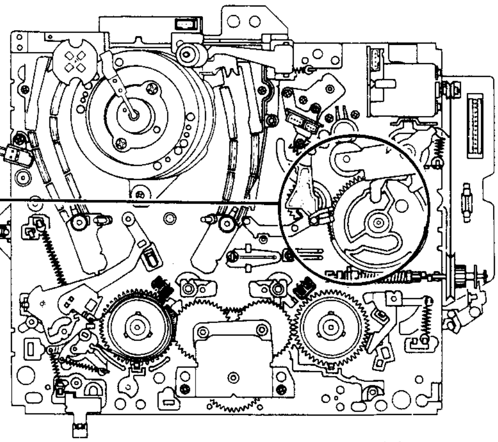
1.5 MAIN PARTS REMOVAL AND REPLACEMENT

No.	Item	Checkpoints	Adjustment and Checks
1	Upper drum assembly •Symptoms: FM signal absent, intermittent or weak on one channel; large difference in channel output levels •Cause: Worn or damaged video heads, poor response, etc.  EP CH-1 SP CH-2 Hole B Drum motor shaft Hole A EP CH-2 SP CH-1 **Fig. 1-5-1** DRUM TOP VIEW	 **Fig.** 1-5-2 Drum Position	
		Mounting direction See Fig. 1-5-1. (Symptom: no picture)	After replacing, observe that upper drum hole A is opposite the motor axis from lower drum hole B.
		Axis wobble See Fig. 1-5-2. (Symptom: jitter, poor FM linearity) PB FM: Main board TP206 FF: Main board TP411	Record and playback in EP mode. Confirm absence of large difference between channels. (Fig. 1-5-3)  **Fig. 1-5-3** Axis wobble
	 Adjust Roller driver PTU94002 Hex driver Loosen Tighten 1.25mm **Fig. 1-5-4** S.T. Pole base	FM linearity check See Fig. 1-5-5. (Symptom: vertical sync absent, picture noise) PB FM: Main board TP206 FF: Main board TP411  **Fig. 1-5-5** FM linearity $\frac{b}{a} \geqq 0.7$, $\frac{c}{a} \geqq 0.65$, $\frac{d}{a} \geqq 0.65$	 **Fig. 1-5-6** S.T. Pole base position 1) Play stairstep signal of the MH-1 Alignment Tape. Confirm absence of obvious FM waveform loss and that operating the Tracking yields the optimum point. 2) Refer to Fig. 1-5-4, adjust for loss at the left edge (drum entry) of the FM waveform by turning the guide roller of the supply pole base. Similarly, adjust for loss at the right edge (drum exit) by turning the guide roller of the take-up pole base. **Note:** *If FM loss occurs on both channels and cannot be corrected by adjusting the guide rollers, the lower drum needs replacement.*

No.	Item	Checkpoints	Adjustment and Checks
	PB switching point •Symptom: switching noise at picture bottom.	VIDEO OUT or TP252  **Fig. 1-5-7** PB Switching Point	1) Connect VCR to AC. Turn power on. 2) Connect an oscilloscope to VIDEO OUT or TP252. 3) Set the MH-1 alignment tape into the cassette housing. Play back the stairstep segment of MH-1 alignment tape. 4) Trigger the oscilloscope externally (−slope) with the signal from TP411 (DRUM FF) of the main board. 5) Adjust R427 to position the trigger point 6.5 H ±0.5 H from V. sync as shown in Fig. 1-5-7.
2	Lower drum assembly •Symptoms: Poor FM linearity, noisy rotation, jitter •Cause: Lead and bearing wear	Check FM linearity and switching point.	See above upper drum assembly items.
		Check control head phase (X value) Symptom: tracking error PB FM: Main board TP206 FF: Main board TP411	1) Play stairstep signals of MH-1 and MH-1L Alighment Tapes. Engage the Tracking Preset mode by pressing the + and − buttons simultaneously in the playback mode. Confirm that the same maximum FM waveform level is obtained as when the tracking is adjusted manually. 2) Refer to the A/C head adjustments.
3	A/C head  **Fig. 1-5-8** Temporary height  Screw ① Screw ② A/C head Tape T. guide pole Screw ③ **Fig. 1-5-9** Inclination/Azimuth/ Height adj.	Temporarily set height as indicated in Fig. 1-5-8.	 **Fig. 1-5-10** A/C HEAD position Set the height as indicated in Fig. 1-5-8 to facilitate tape transport checks and adjustments.
		Tilt (forward inclination) See Fig. 1-5-9. (Symptom: audio level varies greatly.)	1) Run tape, turn screw ① counterclockwise to where slight curling of the tape occurs at the lower flange of the take-up guide roller. 2) Then slowly turn the screw clockwise to where the curling ceases.
		Azimuth See Fig. 1-5-9. (Symptoms: audio low level or noisy) Audio output: Main board AUDIO OUT	1) Set front panel AUDIO MONITOR selector to Normal and play stairstep signal (with audio 7 kHz) of the MH-1 Alignment Tape. Observe audio output signal with oscilloscope. 2) Turn screw ② and adjust for maximum audio output level.

No.	Item	Checkpoints	Adjustment and Checks
	 **Fig. 1-5-11** Height Adj	Height See Fig.s 1-5-9 and 1-5-11. (Symptom: low audio and control signal levels)	1) Run tape and observe the control head area. 2) Turn screws ①, ② and ③ by small and equal amounts until 0.1 to 0.2 mm of the head core bottom can be seen. **Note:** *If difficult to observe, play stairstep signal of MH-1 Alignment Tape and adjust for maximum audio output and control pulse level.*
		FM linearity	Refer to upper drum assembly items. If adjustment is major, again check the azimuth.
	 A/C head positioning tool A/C head Screw ④ Screw ⑤ Capstan A/C head adjusting boss Drum **Fig. 1-5-12** CTL head phase  **Fig. 1-5-13** CTL head phase **Note:** *Trigger the oscilloscope externally signal from TP411 (DRUM FF). Use (+) trigger for MH-1 and MH-1L alignment tape. Narrow head is employed for this model.*	Control head phase See Fig. 1-5-12 PB FM: Main board TP206 FF: Main board TP411 Auto tracking off by menu.	1) Play stairstep signal of MH-1 Alignment Tape and observe the FM waveform. Set for Tracking Preset (Auto tracking off) by pressing the + and – buttons simultaneously in the playback mode. 2) Loosen screws ④ and⑤. Set the A/C head positioning tool on the A/C head adjusting boss as shown in Fig. 1-5-12. 3) Turn the tool first to position the A/C head fully toward the capstan. Then gradually return it toward the drum and stop at the position of maximum FM waveform output level as shown in Fig. 1-5-13. 4) Tighten screw ⑤ . Remove the tool and tighten screw ④. 5) Play stairstep signal of MH-1L Alignment Tape and confirm maximum FM waveform output level as shown in Fig. 1-5-13. 6) If not maximum, slightly loosen screws ④ and ⑤. Use the tool and adjust the head position for the nearest maximum point. Then tighten screws ④ and ⑤.

No.	Item	Checkpoints	Adjustment and Checks
4	Tension arm assembly Tension band assembly  Tension arm tip (0 ± 0.5 mm) Chassis edge Adjust pin **Fig. 1-5-14** Tension arm assy  **Fig. 1-5-16** Cassette housing	Tension pole position See Fig. 1-5-14. (Symptom: poor FM waveform response)	 **Fig. 1-5-15** Tension arm position 1) Remove video cassette tape and set for the playback mode as following steps. 2) Disconnect VCR from AC. Slightly rotates the loading motor counterclockwise by hand, then press the lock level portion Ⓐ of the cassette housing by hand as shown in Fig. 1-5-16. 3) Move the raised portion of the cassette housing slide plate to fully forward by hand with loading motor. At this time, again press the lock level portion Ⓑ of the cassette housing slide plate to lower the cassette housing (internal holder of the cassette housing is locked in lowered position). 4) Cover the cassette LED with opaque material (insulated tape with black). 5) Connect VCR to AC. Press the power button on the Front panel and set for the playback mode. 6) Turn the eccentric adjust pin to align the edge of the chassis with the tension arm tip as shown in Fig. 1-5-14.
		Back tension (Symptom: skew)	1) When the tension pole position is correctly adjusted, the back tension will assume the correct value. 2) Use the Back Tension Cassette Gauge and set for the playback mode. Confirm reading of 35 to 48. 3) Changing the tension pole position in order to vary the back tension will cause adverse effects elsewhere.

No.	Item	Checkpoints	Adjustment and Checks
5	Pinch roller cam Control cam Half loading gear assembly Guide arm assembly	 Spring Correct direction Pinch roller cam Guide arm ass'y Holes overlap each other. Holes overlap each other. Half loading gear ass'y Control cam **Fig. 1-5-17** Control/Pinch roller cam Important: Do not remove or disturb parts other than those mentioned. See Fig. 1-5-17.	Set mechanism to Eject mode (internal holder of the cassette housing is locked in raised) position.  **Fig. 1-5-18** Control cam position 1) When installing the pinch roller cam, overlap the largest hole of the gear portion with the hole of the deck. 2) Set the control cam on the deck with the hole of the groove overlapped with the hole of the deck. Observe that the small hole of the control cam and the ridge of the pinch roller cam are aligned. (If the control cam does not fit readily, shift the rear plate assembly within the range of play.) 3) Install the half loading gear assembly with the hole overlapped with the hole of the deck. Secure with E-ring. 4) Install the guide assembly over the spring and with the hole overlapping that of the deck. Engage the spring correctly.
		Cassette housing assembly	Install the cassette housing assembly with the mechanism in the Eject mode. Also observe that the inner holder of the housing is raised and locked.
6	Clutch assembly	Take-up torque (Symptom: inadequate take-up torque)	1) Remove cassette housing and set for playback mode (see Section 1.2.2). 2) Set torque gauge on the take-up reel disk. Gradually relax your grip on the gauge and read the needle indication at the point the gauge begins to rotate with the disk. Confirm indication of 60 to 100.

No.	Item	Checkpoints	Adjustment and Checks
7	Take-up loading arm assembly Supply loading arm assembly Plate assembly		Notes: • *Set mechanism to the Eject or Stop mode before removing these parts.* • *The flange of the plastic rivet securing the loading arm assembly and the pole base assembly can be damaged by attempting to remove it directly. Press the loading arm assembly firmly to prevent motion. Then use a narrow-shafted tool to press the rivet from the shaft end to remove it.*
		Mounting position alignment • Remove the tension arm assembly to facilitate operation. See Fig. 1-5-19	1) Set the supply and take-up loading arm assemblies so that the holes of the gear portions are aligned, then secure to the pole base assemblies with rivets. 2) Shift the plate assembly and install with the holes of the upper and lower components overlapped.
		Slide switch See Fig. 1-5-19 .	Be sure to engage the slide switch slider with the edge of the plate assembly.

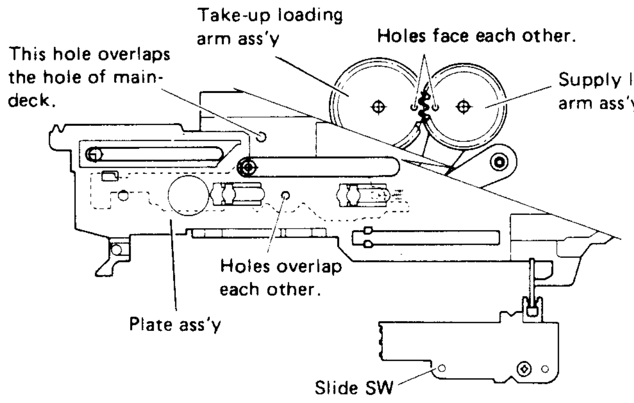

Take-up loading arm ass'y
This hole overlaps the hole of main-deck.
Holes face each other.
Supply loading arm ass'y
Holes overlap each other.
Plate ass'y
Slide SW

Fig. 1-5-19

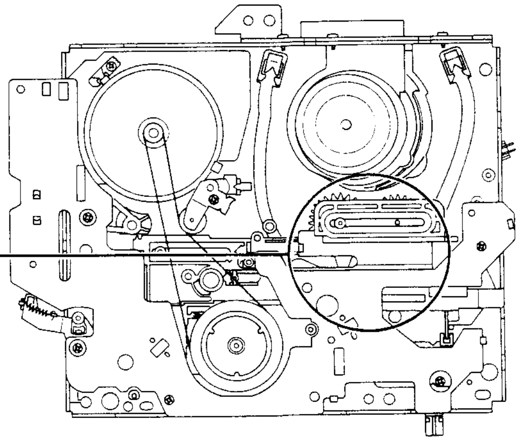


Fig. 1-5-20
T.S. Loading arm position

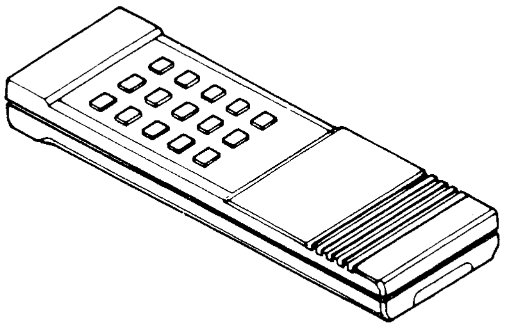
SECTION 2
ELECTRICAL ADJUSTMENTS

2.1 PREPARATION

Electrical adjustments are required after replacing circuit components and certain mechanical parts.
It is important to perform these adjustments only after all repairs and replacements have been completed. Also, do not attempt these adjustments unless the proper equipment is available.

2.1.1 Required test equipment

1. Color television or monitor
2. Oscilloscope: wide-band, dual-trace, triggered delayed sweep
3. Frequency counter
4. Audio oscillator
5. Audio voltmeter
6. Digital voltmeter
7. Signal generator: RF/IF sweep/marker
8. Signal generator: NTSC color bar, stairstep
9. Distortion meter
10. Recording tape
11. Alignment tapes: (MH-1, MH-1L)
12. Presetting unit



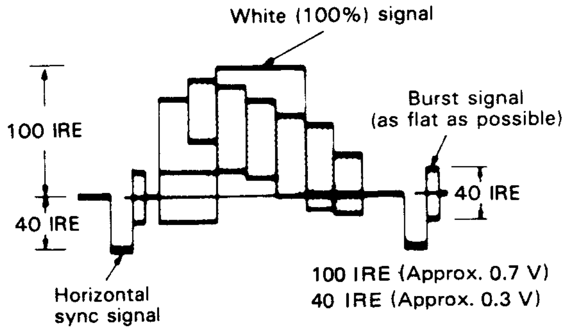

White (100%) signal
Burst signal
(as flat as possible)
100 IRE
40 IRE
40 IRE
Horizontal
sync signal
100 IRE (Approx. 0.7 V)
40 IRE (Approx. 0.3 V)

Fig. 2-1-1 Color bar signal of pattern generator

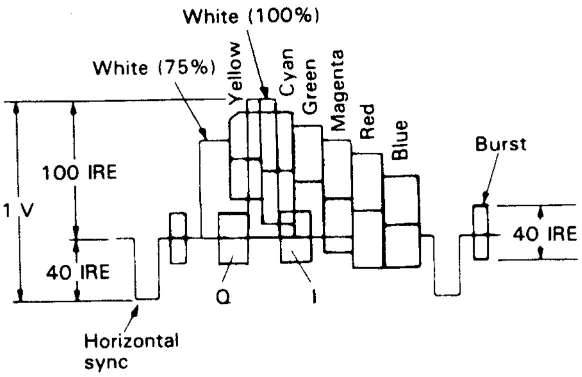

White (100%)
White (75%)
Yellow
Cyan
Green
Magenta
Red
Blue
Burst
100 IRE
1 V
40 IRE
40 IRE
Q
I
Horizontal
sync

Fig. 2-1-2 Color bar signal waveform

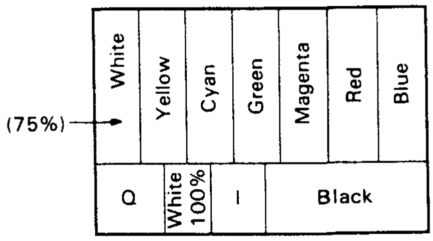

White
Yellow
Cyan
Green
Magenta
Red
Blue
(75%)
Q
White
100%
I
Black

Fig. 2-1-3 Color bar pattern

2.1.2 Check and adjustment steps

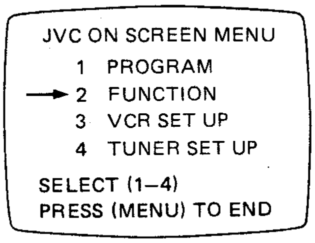
The check and adjustment steps are provided in the following in the form of charts. For clarity, the nomenclature used in the charts is outlined below.

No.	Checks and adjustments are numbered in the recommended sequence in which they are to be performed.
Item	Name assigned to the particular check and adjustment step.
Check Point	Location to which measuring instrument (oscilloscope unless otherwise noted) is to be connected.
Adjustment Parts	Variable component (resistor, capacitor, etc.) to be adjusted in this step. Dash (–) indicates check only.
Signal & Mode	• Input signal required to perform adjustment. Dash (–) indicates that special signal is not required. • Equipment operating mode at time of check or adjustment.
Color bars	Color bar signal as video input.
Stairstep	Stairstep signal as video input.
1 kHz	1 kHz sinewave as audio input signal.
MH-1 color bars	Color bar segment of MH-1 alignment tape.
MH-1 stairstep	Stairstep segment of MH-1 alignment tape.
MH-1 1 kHz	1 kHz audio signal segment of MH-1 alignment tape.
MH-1 RF sweep	RF sweep segment of MH-1 alignment tape.
MH-1L color bars	Color bars segment of MH-1L alignment tape.
MH-1L stairstep	Stairstep segment of MH-1L alignment tape.
MH-1L RF sweep	RF sweep segment of MH-1L alignment tape.
MH-1M color bars	Color bar segment of MH-1M alignment tape.
MH-1M stairstep	Stairstep segment of MH-1M alignment tape.
MH-1H color bars	Color bar segment of MH-1H alignment tape.
MH-F1 stairstep	Stairstep segment of MH-F1 alignment tape.
MH-F1 1 kHz	1 kHz FM audio signal segment of MH-F1 alignment tape.
E-E	Power on and machine in Stop mode.
REC	Recording mode
PB	Playback mode
SEARCH	Search (FWDS and REVS) playback mode
SLOW	Slow motion playback mode
STILL	Pause during playback mode
A DUB	Audio dubbing mode
SP mode	SP recording speed
EP mode	EP recording speed
LP mode	LP recording speed
Description	This column provides an explanation of the step, notes and adjustment values, and reference to waveforms where applicable.

2.1.3 Confirmation

Before adjustment, use the MENU button function to set the PROGRAM, FUNCTION, VCR SET UP and TUNER SET UP.

1. Press the MENU button.
   - The following MENU appears on the monitor-TV as shown in Fig. 2-1-4.
2. The FUNCTION menu provides on screen display of the AUTO TRACKING, REPEAT, DIMMER, 2ND AUDIO and AUDIO MONITOR.
3. The TUNER SET UP menu provides on screen display of the AUTO CHANNEL SET, MANUAL CHANNEL SET, BAND and AFC.



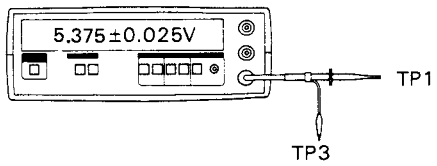
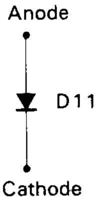
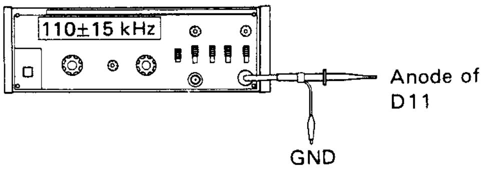
JVC ON SCREEN MENU
1 PROGRAM
→ 2 FUNCTION
3 VCR SET UP
4 TUNER SET UP
SELECT (1–4)
PRESS (MENU) TO END

• selected by SET (– or +)

Fig. 2-1-4

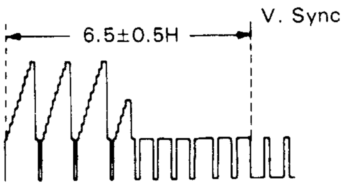
2.2 SWITCHING REGULATOR CIRCUIT

Note: *Unless otherwise specified, all test points and adjustments are located on the SWITCHING REG board.*

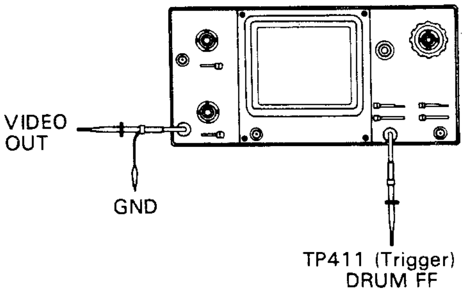
No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	5 V DC OUTPUT	• REC	•TUNER •SP	• TP1 (INPUT) TP3 (GND)	• R28 (SWD 5 V ADJ)	1) Set recording video cassette into the cassette housing and set for the REC mode. 2) Connect a digital voltmeter as shown in Fig. 2-2-1. 3) Adjust R28 for 5.375 ± 0.025 V. Digital Voltmeter  **Fig. 2-2-1**
2	Confirmation of oscillation	• REC	•TUNER •SP	• Anode of D11 		1) Set recording video cassette into the cassette housing and set for the REC mode. 2) Connect a frequency counter as shown in Fig. 2-2-2. Frequency counter  **Fig. 2-2-2**

2.3 SERVO CIRCUIT

Notes: *1. Unless otherwise specified, all test points and adjustments are located on the MAIN board.*
2. T indicates the time and volts/division setting of the oscilloscope (use 10 : 1 probe).

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	SP PB switching point	• PB	• MH-1 stairstep • SP • Trigger slope (–)	• VIDEO OUT	• R427 (SP PB Switching point)	1) Connect an oscilloscope as shown in Fig. 2-3-1. 2) Play back the stairstep segment of MH-1 alignment tape. 3) Adjust R427 to position the trigger point 6.5 H ± 0.5 H from V. sync as shown in Fig. 2-3-2.  **Fig. 2-3-2** PB switching point

Oscilloscope



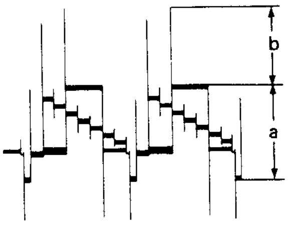
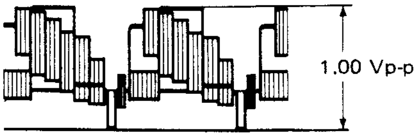
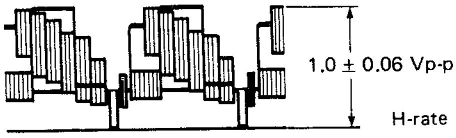
T: 50μs/20mV

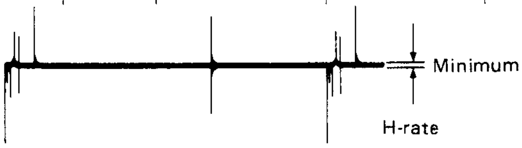
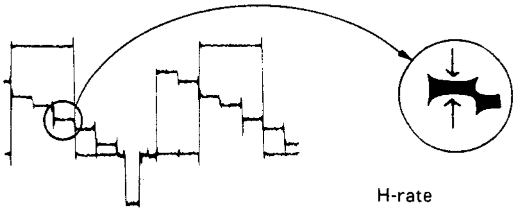
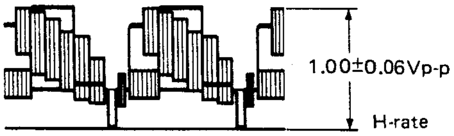
Fig. 2-3-1

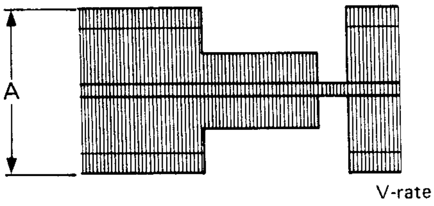
No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
2	SP slow tracking preset	• REC then PB (slow 1/6)	• SP	• TV monitor	• Presetting unit (PTU-94008)	**Note:** *Set VCR to A mode by remote controller.* 1) Connect VCR to AC. Turn power on. 2) Set recording video cassette into the cassette housing. 3) Receive a color broadcast on a VHF-HI channel or supply a color bar signal to VIDEO IN. 4) Record a color broadcast or color bar signal in the SP mode. 5) Play back recorded signal in the FWD and REV slow mode and set the tracking control of the FRONT panel to the center position by simultaneously pressing the (+) and (–) tracking buttons. 6) Observe the display on a monitor-TV and adjust for optimum noise condition (best tracking) by depressing "B (–)" or "C (+)" buttons of presetting unit as required. 7) Depress the STOP button on the FRONT panel. 8) Confirm that the bar noise is not visible on the monitor in the slow mode.
3	EP slow tracking preset	• REC then PB (slow 1/6)	• EP	• TV monitor	• Presetting unit (PTU-94008)	1) In the same manner as the above SP slow mode.

2.4 VIDEO CIRCUIT

Note: *Unless otherwise specified, all test points and adjustments are located on the VIDEO unit board.*

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
IMPORTANT: Item 1, 2, 3 and 4 1. Ordinarily avoid performing these adjustments. It should be performed only if IC2 of the VIDEO UNIT board has been replaced. 2. To adjust, replace fixed resistor with variable resistor, then adjust as required.						
1	EE level & White clip	• EE	• Color bar  **Fig. 2-4-1** White clip	• IC2-24	• R60 (EE Y level) • R63 (white clip)	1) When IC2 of the VIDEO UNIT board is replaced, it may also be necessary to replace R60 and R63 with adjustable resistors. 2) Confirm 1.00 (± 0.06) Vp-p EE level at VIDEO OUT (75Ω load) and white clip of 90 ± 4% at IC2-24. If necessary, replace R60 with NVP1301-223NU and R63 with NVP1301-103NU. 3) Supply a color bar signal to VIDEO IN, connect one channel of a dual trace oscilloscope to VIDEO OUT and the other channel to IC2-24. 4) Terminate VIDEO OUT with a TV monitor (75Ω load), alternately adjust R60 and R63 for 1.00 (± 0.06) Vp-p at VIDEO OUT and white clip of 90 ± 4% at IC2-24.  **Fig. 2-4-2** VIDEO OUT
2	Carrier & Deviation	• EE	• AUX **IMPORTANT:** **Ordinarily avoid performing this adjustment. It should be performed only if IC2 of the VIDEO UNIT board has been replaced or if significant waveform distortion and S/N deterioration occur during recording and playback due to deficient adjustment of the carrier set and deviation.**	• JP202-6 (Main board)	• R41 (carrier)	1) When IC2 of the video unit board is replaced, it may also be necessary to replaced R41 and R42 with adjustable resistors. 2) Play back a color bar segment of MH1 and confirm 1.00 (± 0.06) Vp-p Y level at VIDEO OUT (75Ω load). If necessary, replace R41 with NVP1301-153NU and R42 with NVP1301-103NU. 3) Without an incoming signal. Terminate VIDEO OUT with TV-monitor (75Ω load), connect a frequency counter to JP202-6 on the MAIN board. 4) Adjust R41 for 3.4 ± 0.04 MHz. 5) Play back a color bar segment of MH1, and confirm 1.00 (± 0.06) Vp-p at VIDEO OUT. If necessary, replace R38 with NVP1301-222NU.
		• REC then PB	• Color bar • SP • AUX  **Fig. 2-4-3** Carrier and deviation	• TP211 Video out (Main board)	• R42 (deviation)	6) Record and play back a color bar signal. If necessary, before recording, adjust R42 so that the Y level becomes 1.00 (± 0.06) Vp-p at VIDEO OUT during playback mode.

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
3	YNR NC balance  **Fig. 2-4-4** YNR NC balance	• EE	• Color bar • AUX	• IC2-9	• R25 (NC BAL)	1) When IC2 of the video unit board is replaced, it may also be necessary to replace R25 with adjustable resistor. 2) Supply a color bar signal to VIDEO IN, connect an oscilloscope to IC2-9 on the VIDEO UNIT board. 3) Confirm minimum DC step difference. If neces- replace R25 with NVP1301-472NU. 4) Adjust R25 for minimum DC step difference.
4	Y/C separation  **Fig. 2-4-5** Y/C separation	• EE	• Color bar • AUX	• IC2-16	• R11, R12, R17 (Y/C SEP)	1) When IC2 of the video unit board is replaced, it may also be necessary to replace R11, R12 and R17 with adjustable resistors. 2) Supply a color bar signal to VIDEO IN, connect an oscilloscope to pin 16 of IC2. 3) Confirm minimum (less than 0.3 Vp-p) chromatic level of the magenta portion. If necessary, replace R11, R12 and R17 with NVP1301-153, NVP1301-153 and NVP1301-102. 4) Use the controls of the oscilloscope to expand protion Ⓐ of the IC2-16 waveform. 5) Adjust R11, R12 and R17 alternately for minimum chromatic level (less than 0.3 Vp-p of the magenta portion).
5	PB Y level  **Fig. 2-4-6** PB Y level	• REC then PB	• Color bar • SP • AUX • TP411 (DRUM FF) Main board	• TP211 (video out) (Main board)	• R38 (PB Y level)	1) When IC2 of the video unit board is replaced, it may also be necessary to replace R38 with adjustable resistor. 2) Record and play back a color bar signal, confirm 1.00 (± 0.06) Vp-p Y level at VIDEO OUT (75Ω load). If necessary, replace R38 with NVP1301-222NU. 3) Terminate VIDEO OUT with TV-monitor (75Ω load), connect oscilloscope to VIDEO OUT. 4) Record and play back a color bar signal, adjust R38 for 1.00 (± 0.06) Vp-p at VIDEO OUT.

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
7	REC color level (SP)	• PB	• MH-1 color bar • SP Auto tracking off by MENU  **Fig. 2-4-7** REC color level	• IC2-43	• R208 [MAIN board]	1) Connect an oscilloscope to IC2-43 and observe color signal level. 2) Set the MH-1 alignment tape into the cassette housing, paly back the color bar segment of MH-1 alignment tape. 3) Adjust by pressing the "+" and "–" tracking buttons of the Front panel for maximum level of the color waveform and make a note of the higher color level "A". 4) Press the STOP button on the FRONT panel and eject the MH-1 alignment tape.
		• REC then PB				5) Set recording video cassette into the cassette housing. Supply a color bar signal to VIDEO IN. 6) Trigger the oscilloscope externally with the signal from TP411 (DRUM FF) of the Main board. Use (–) trigger for CH1 and (+) trigger for CH2. 7) Record a color bar signal in the SP mode. 8) Play back recorded color bar signal. Confirm 100 ± 5% of the noted color level at IC2-43. If necessary, before recording, adjust R208 so that the higher level channel becomes 100 ± 5% of the noted level "A" during playback as shwon in Fig. 2-4-7. At this time, confrim that the channel level difference is within 4 dB. **Note:** *Repeat the above step 8) several times.*
8	REC color level (EP)	•PB •REC then PB	•MH-1L color bar •EP	•IC2-43	•R215 (Main board)	1) Repeat the above steps 1 to 6. 2) Record a color bar signal in the EP mode. 3) Trigger the oscilloscope externally with signal from TP411 (DRUM FF). Use (–) trigger for CH1 and (+) trigger for CH2. 4) Play back recorded color bar signal. If necessary, before recording, adjust R215 so that the higher level channel becomes 85 ± 5% of the noted level during playback as shown in Fig. 2-4-7. At this time, confirm that the channel level difference is within 5 dB. **Note:** *Repeat the above step 4) several times.*

2.5 AUDIO CIRCUIT

Note: *Unless otherwise specified, all test points and adjustments are located on the AUDIO UNIT board.*

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	Audio bias level	• REC	• No input signal • SP • AUX	• TP331(+) • TP332(−) (Main board)	• R320 (Bias adj.) (Main board)	1) Connect a millivoltmenter between TP331 (INPUT) and TP332 (GND). 2) Set for REC mode without incoming signal. 3) Adjust R320 for 2.6 mVrms.
2	Carrer frequency	• EE	• AUX • No signal • SP	• IC1-22 (Left ch)	• R27 (Carrier)	1) Connect a frequency counter to pin 22 of IC1. 2) Confirm that the frequency counter indicates 1.300 ± 0.005 MHz. If necessary, replace R27 with NVP1301-103NU and adjust R41 for 1.700 ± 0.005 MHz.
				• IC1-39 (Right ch)	• R41 (Carrier)	3) Change the frequency counter to pin 39 of IC1. 4) Confirm that the frequency counter indicates 1.700 ± 0.005 MHz. If necessary, replace R41 with NVP1301-332NU and adjust R41 for 1.700 ± 0.005 MHz.
3	PB level	• PB	• MH-F1 1 kHz • SP • Auto tracking: OFF • Audio monitor: HIFI	• AUDIO OUT	• R24 (level)	1) Connect a millivoltmeter to Audio out (left channel). Play back the 1 kHz segment of the alignment tape (MH-F1). 2) Confirm −8 ± 2 dBm (0.88 $^{+0.22}_{-0.18}$ Vp-p) audio level at left Audio out. If necessary, replace R24 with NVP1301-153NU. 3) Adjust R24 for −8 ± 2 dBm.
					• R44 (level)	1) In the same manner as above, adjust R44 for the Right channel.

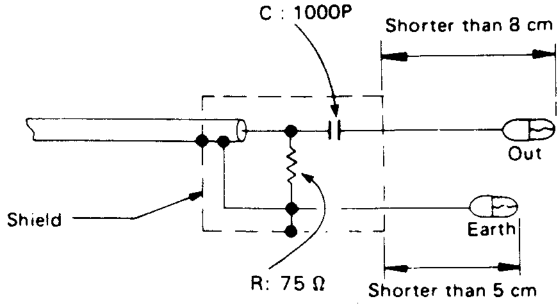
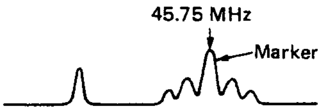
2.6 TIMER CIRCUIT

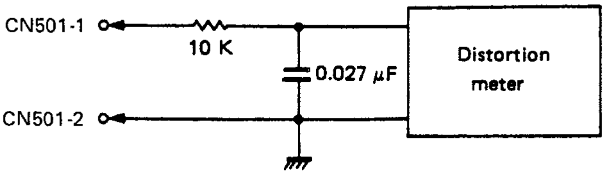
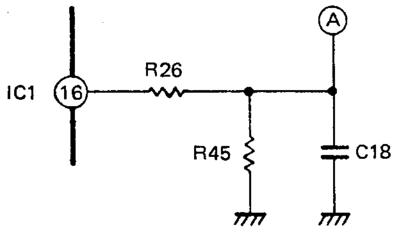
Note: *Unless otherwise specified, all test points and adjustments are located on the TIMER/DISPLAY/SWITCH board.*

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	Clock	• EE	• AUX	• IC701-37	• C714 (clock)	**Note:** *For the following adjustments, use 1 : 1 probe with input capacitance less than 100 pF.* 1) Disconnect VCR from AC. Connect a frequency counter between IC701-37 and GND. 2) Short IC701-18 to GND, then short the leads of capacitor C702 once in order to reset IC701. 3) Connect VCR to AC. All FDP segments are off. 4) Adjust C714 for 2048.000 ± 0.002 Hz (488.2808 to 488.2818 μs). **INFORMATION** Adjust the counter gain (attenuator) so that the amplitude is resonable at input terminal of counter.

2.7 TUNER/IF CIRCUIT

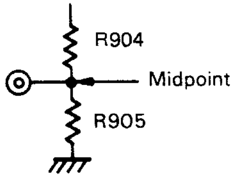
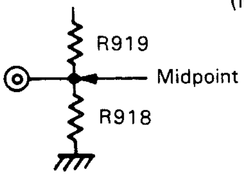
Note: *Unless otherwise specified, all test points and adjustments are located on the MAIN board.*

<table>
<tr><th>No.</th><th>Item</th><th>Mode</th><th>Signal & Setting</th><th>Measurement Point</th><th>Adjustment Parts</th><th>Adjustment Procedure</th></tr>
<tr><td colspan="5">Equipment required:
1. Oscilloscope
2. IF sweep signal generator with suitable markers (PIF, SIF, etc.)
3. Sweeper probe (sweep signal supply cable) as shown in Fig. 2-7-1</td><td colspan="2">
Fig. 2-7-1 Sweeper probe</td></tr>
<tr><td>1</td><td>VCO</td><td>• EE</td><td>• Tuner</td><td>• IC1-18</td><td>• T2 (VCO)</td><td>1) Use a sweeper probe as shown in Fig. 2-7-1 and connect the sweep signal generator output to pin 1 of SAW1.
Adjust the sweep gain so that the waveform does not distort as observed with the oscilloscope. Connect the oscilloscope to pin 28 of IC1 (VIDEO DET OUT) and adjust T2 to align the waveform with the frequency marker as shown in Fig. 2-7-2.</td></tr>
<tr><td></td><td></td><td></td><td colspan="3">
VCO and sweep signal (beat)
Fig. 2-7-2 VCO</td><td></td></tr>
<tr><td></td><td></td><td></td><td>• Tuner
• TV broadcast</td><td>• TV monitor</td><td>• T2 (VCO)</td><td>Alternate method:
1) Receive a color broadcast on a VHF-HI channel (7 to 13).
2) Adjust T2 to obtain a fine picture on the monitor.</td></tr>
<tr><td></td><td colspan="5">● Before the following adjustment:
1. Connect a cable to ANT IN and terminate TV OUT at 75 Ω.
2. Set a TV channel signal generator as follows.
Video : 70 dBμ/75 Ω, color bar 87.5% modulation
Audio : 62 dBμ/75 Ω, 1 kHz ± 25 kHz deviation</td><td></td></tr>
<tr><td>2</td><td>RF AGC</td><td>• EE</td><td>• Tuner
• TV broadcast</td><td>• TV signal</td><td>• R21 (RF AGC)</td><td>1) Connect the oscilloscope to IF terminal of U/V Tuner (Front end). Adjust R21 for maximum level, then again adjust R21 for −7 dB again.
Alternate method:
Note: <i>Adjust R21 (RF AGC) to correct for excess noise in the picture or when streaky cross interference occurs due to strong electrical fields.</i>
1) Adjust R21 to minimize noise or streaks on the TV screen.
2) Check for absence of abnormality on all channels.</td></tr>
</table>

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
3	SOUND DET.	• EE	• Tuner • TV broadcast	• CN501-1 (Audio out) Main board	• T4 (Sound det)	1) Use a adjustment circuit as shown in Fig. 2-7-3. and with AFC SW to NORM, connect a distortion meter as shown in Fig. 2-7-3. 2) Adjust T4 for minimum distortion (less than 0.5%).
	 **Fig. 2-7-3** Adjustment circuit					
				• CN501-1 (Main board)		**Alternate method:** 1) Receive a color broadcast on a VHF-HI channel (7 to 13). Connect an oscilloscope to CN501-1 of the MAIN board. 2) Adjust T4 for maximum level at audio sound.
4	AFC	• EE	• Tuner • TV broadcast • AFC NORM by MENU	• Ⓐ (Main board)	• T3 (AFC)	1) With AFC MODE to NORM, connect oscilloscope to Ⓐ of the MAIN board as shown in Fig. 2-7-4. 2) Set the oscilloscope to DC mode and adjust T3 to set the lower edge of the ripple waveform to 2.0 ± 0.1 V.
	 **Fig. 2-7-4** Adjustment point			• Ⓐ (Main board)	• T3 (AFC)	**Alternate method:** 1) Receive a color broadcast on a VHF-HI channel (7 to 13). 2) With AFC MODE to NORM, connect oscilloscope to Ⓐ of the MAIN board as shown in Fig. 2-7-4. 3) Set the oscilloscope to DC mode and adjust T3 to set the lower edge of the ripple waveform to 2.0 ± 0.1 V.

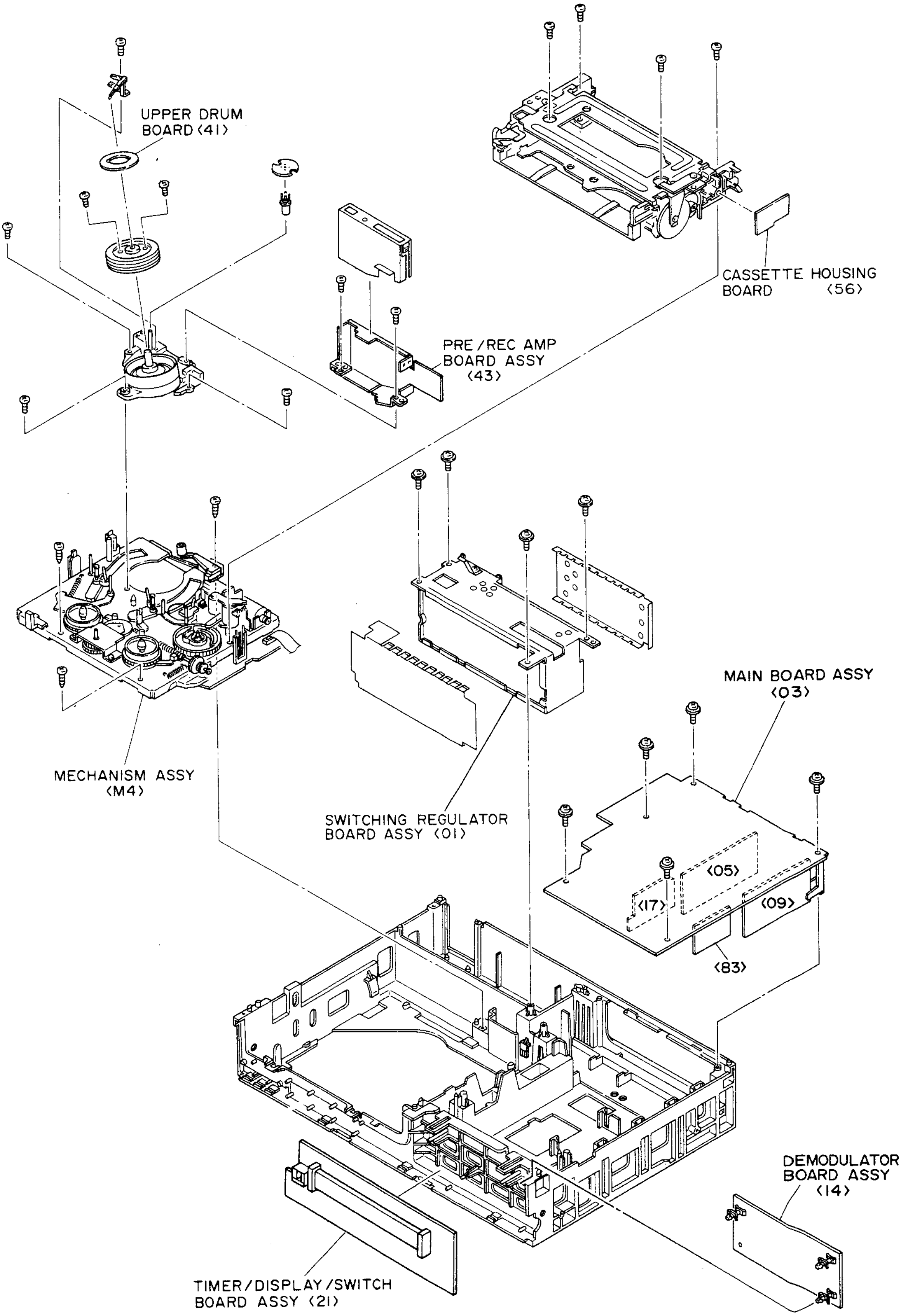
2.8 ON SCREEN CIRCUIT

Note: *Unless otherwise specified, all test points and adjustments are located on the MAIN board.*

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	DOT clock	• EE	• AUX	• TP901 (Midpoint)	• C905 (charactor pos)	**Note:** *For the following adjustments, use 1 : 1 probe with input capacitance less than 100 pF.* 1) Connect a frequency counter to TP901 (midpoint of R904 and R905) and GND. Short IC901-3 to GND and short IC1-30 to VDD (IC901-32). 2) Adjust C905 for 7.7 ± 0.05 MHz without video signal.
		 **Fig. 2-8-1** DOT clock				
2	Color burst clock	• EE	• AUX	• TP902 (Midpoint)	• C916 (Back color)	3) Change the counter probe to TP902 (midpoint of R918 and R919) and GND. Adjust C916 for 14.31818 ± 0.00015 MHz.
		 **Fig. 2-8-2** Color burst clock				

SECTION 3
CHARTS AND DIAGRAMS

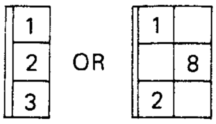
3.1 CIRCUIT BOARD AND LOCATION


UPPER DRUM BOARD ⟨41⟩
CASSETTE HOUSING BOARD ⟨56⟩
PRE/REC AMP BOARD ASSY ⟨43⟩
MAIN BOARD ASSY ⟨03⟩
MECHANISM ASSY ⟨M4⟩
SWITCHING REGULATOR BOARD ASSY ⟨01⟩
⟨05⟩
⟨17⟩
⟨09⟩
⟨83⟩
DEMODULATOR BOARD ASSY ⟨14⟩
TIMER/DISPLAY/SWITCH BOARD ASSY ⟨21⟩

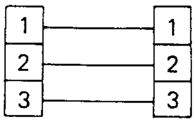
3.2 GENERAL INFORMATION

3.2.1 Connections

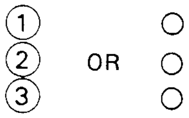
Note:
Unless otherwise specified, only signal input flow is indicated.
Connection arrows indicate only signal outputs.



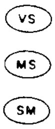
: Connectors



: Board in connectors



: Direct connections



: Connected pattern in the board.

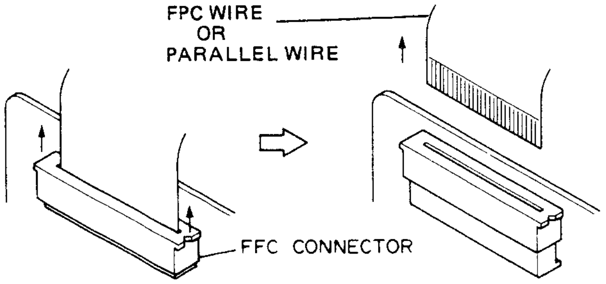
Abbreviations

V	: Video	M	: Mechacon
S	: Servo	A	: Audio

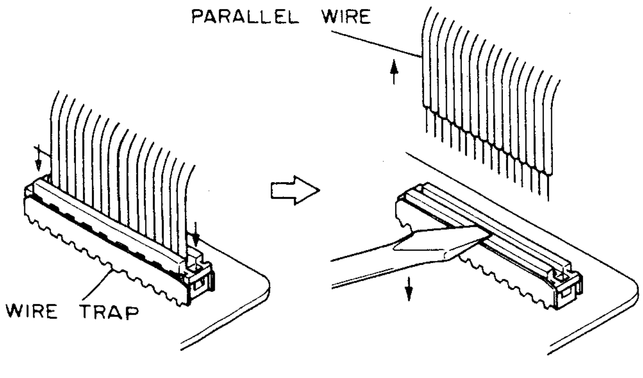
VS : Signal flow from video to servo.

3.2.2 Disconnecting the flatwire

1. Pull the connector structure upward to release the clamp when removing or inserting the flat wire cable.

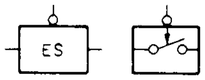


2. Depress the connector structure downward to release the clamp when removing or inserting the flat wire cable, as indicated below.

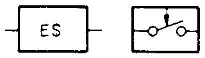


3.2.3 Indications

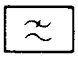
AUX : Active only at high.
$\overline{\mathrm{AUX}}$: Active only at low.
$\bar{\mathrm{A}}\bar{\mathrm{U}}\bar{\mathrm{X}}$: Active only at middle.
$\bar{\mathrm{A}}\mathrm{U}\bar{\mathrm{X}}$: Active only at open.



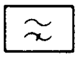
: Active only at low for electronic switch.



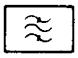
: Active only at high for electronic switch.



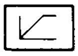
: Low pass filter.



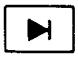
: High pass filter.



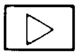
: Band pass filter.



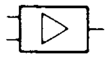
: Limiter.



: Detector



: Amplifier.



: Mixer stage.

3.2.4 Schematic diagram values

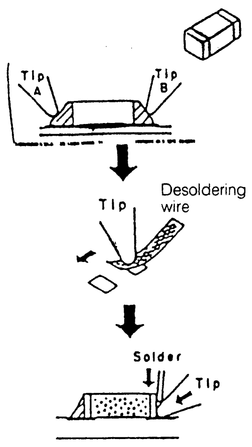
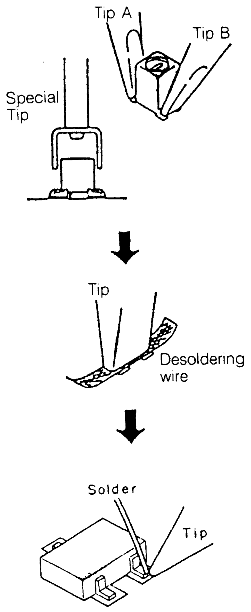
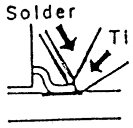
Unless otherwise specified.

1. All resistance values are in ohms, 1/6 W or 1/8 W (refer to parts list).
2. All capacitance values are in μF, (P; PF).
3. All inductance values are in μH, (m; mH).
4. All diodes are 1SS133 or MA165, (refer to parts list).
5. Voltages are DC-measured (reference to ground) with a digital voltmeter during recording (SP mode) and playback (SP mode) with alignment tape. Where voltages differ between recording and playback, the voltage during playback is shown in parenthesis.
6. Waveforms (VIDEO System) are measured (reference to ground) with a color bar during recording (SP mode) and playback (SP mode) with alignment tape.
7. Waveforms (AUDIO System) are measured (reference to ground) with 1 kHz (−8 dBs) during recording and playback with alignment tape (1 kHz).
8. Shaded (▨) parts are critical for safety. Replace only with specified part numbers.

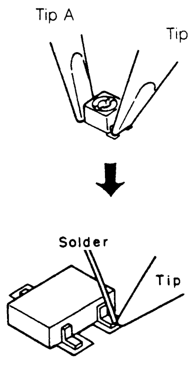
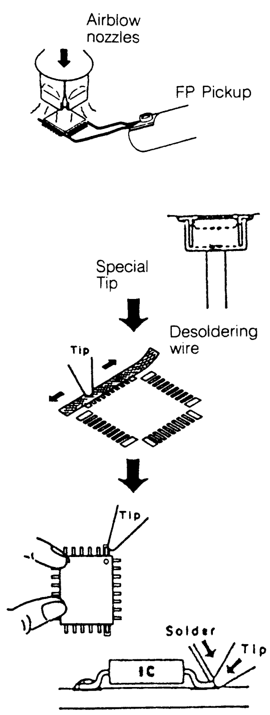
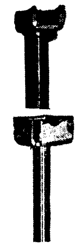
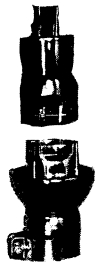
3.2.5 Signal flow in the schematic

➡ Recording signal path
⇨ Playback signal path
➡ REC/PB signal path

3.2.6 Basic knowledge of SMC* parts replacement

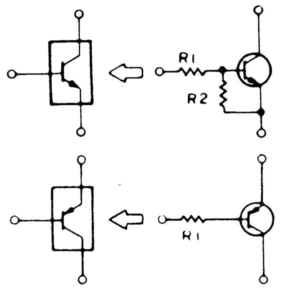
Products	Appearance	Replacement technology	Removal method	Installation method	Soldering tip types	Cautions
Thick Film Chip Resistors			• **Use 2 soldering irons** 1. Use thin tip soldering irons. 2. Use soldering tip temperature of about 280°C. 3. Simultaneously heat both ends of the part. 4. While heating, grasp the part with the tips of the soldering irons and remove it. 5. Use desoldering wire to completely remove the old solder from the part location of the board. 6. A clean pattern for installing the new part is very important.	1. Clean the area where the new part is to be moundted (use alcohol). 2. Apply flux. 3. Set part correctly into position, prevent it from shifting. 4. Bring the soldering iron tip close to the part contact without actually touching it. Melt thin (0.3 mm) solder between the tip and part so that it flows into the part contact. 5. Check work quality with a magnifier.	Thin tip type Small flat-blade tip type 	Some parts can be damaged by sudden heating. Preheat the part at about 100°C for several minutes before installing it. Do not touch the part body with the soldering iron. The thin (0.3 mm) solder for miniature parts does not contain adequate flux. Supplementary flux is thus needed in most cases. Set the position carefully and secure the part. A defective trimming resistor cannot be adjusted externally. Replace with an ordinary variable resistor.
Carbon Film Chip Resitors						
Metal Film Chip Resistors						
Chip Ceramic Capacitors						
Chip Triming Resistors						
Chip Inductors		 Tip A Tip B Special Tip Tip Desoldering wire Solder Tip	• **Special desoldering iron** 1. Select soldering tip according to part size. 2. Bring the tip into contact with the soldered points. 3. When the solder melts, remove the part. 4. Remove the old solder with desoldering wire. • **2 soldering irons** 1. Use small flat-blade tips. 2. Heat both ends of the part simultaneously. 3. When the solder melts, grasp and remove the part with the soldering iron tips. 4. Remove the old solder with desoldering wire.	1. Clean the area where the new part is to be mounted (use alcohol). 2. Apply flux. 3. Set part correctly into position, prevent it from shifting. 4. Use sharp soldering iron tip. Bring close to the part contact without actually touching it. Melt thin solder between the tip and part so that it flows into the part contact.  5. Check work quality with a magnifier.	Special Soldering tip Small flat-blade tip type Thin tip type 	Use care not to damage plastic components when soldering. Position the part carefully. This will also affect the soldering operation. Use care regarding soldering iron tip and avoid rapidly heating parts. For larger parts, use a slightly higher temperature (about 300°C). Check after installing (cold solder joints, etc.). Use care not to damage the circuit pattern, especially when removing.
Chip Resistor Networks						
Chip Tantalum Capacitors						
Chip Tantalum Electrolytic Capacitors						
Chip Aluminum Electrolytic Capacitors						
Chip Transformers						
Chip Filters						

*SMC: Surface Mounted Component

Products	Appearance	Replacement technology	Removal method	Installation method	Soldering tip types	Cautions
Chip VRs			• **2 soldering irons** 1. Use small flat-blade tips. 2. Heat the leads of the part simultaneously. 3. When the solder melts, grasp and remove the part with the soldering iron tips. 4. Remove the old solder with desoldering wire.	1. Clean the area where the new part is to be moundted (use alcohol). 2. Apply flux. 3. Set part correctly into position, prevent it from shifting. 4. Use sharp soldering iron tip. Bring close to the part contact without actually touching it. Melt thin solder between the tip and part so that it flows into the part contact.	Thin tip type Small flat-blade tip type 	Use care not to damage the part when soldering. Check for solder joints, expecially miniature parts with small leads.
Chip Trimmer Capacitors						
Diodes						
Transistors						
IC (SOP) (Small Outline Package)		 Airblow nozzles FP Pickup Special Tip Desoldering wire Tip Tip Solder Tip IC	• **Special desoldering iron** 1. Select the tip according to the size and shape of the IC. 2. "Tin" the tip with a small amount of solder. 3. Set the tip squarely over the IC leads. 4. When the solder melts, carefully twist the iron. 5. Raise and remove the IC. • **Shaped airblower unit** 1. Select the correct nozzle. 2. Select the temperature and airblow (suggested: temp. 7, airblow 4). 3. Engage the IC removing tool. 4. Use the airblow to preheat the IC for about 5 seconds, then heat with the nozzle until the IC remover lifts the part from the board.	1. Use desoldering wire to remove the previous solder. 2. Clean the location with alcohol. 3. Apply flux. 4. Position the IC and solder two pins at opposite sides. 5. Use a sharp tipped soldering iron and carefully solder each pin. (After gaining experience, a thicker tip can be used for better work efficiency.) 6. Remove any solder bridges with desoldering wire. 7. Inspect the work with a magnifier.	Special soldering tips.  Airblow nozzles 	Do not reuse removed parts. Use care to avoid solder bridges. Remove any that occurs. Remove the old IC carefully so as not to damage the circuit pattern. Because of the many pins, cleanliness of the pattern is extremely important after removing the IC. Be very precise in positioning the IC. Soldering opposite pins first holds the IC in place and makes soldering the other pins easier. It is important to inspect the work with a magnifier. ICs (especially TSOP) are easily damaged by heat. Do not touch directly with the soldering iron.
IC (SSOP) (Shrink Small Outline Package)						
IC (VSOP) (Very Small Outline Package)						
IC (QFP) (Quad Flat Package)						
IC (VQFP) (Very Small Quad Flat Package)						
IC (PLCC) (Plastic Leaded Chip Carrier)						
IC (TSOP) (Thin Small Outline Package)						

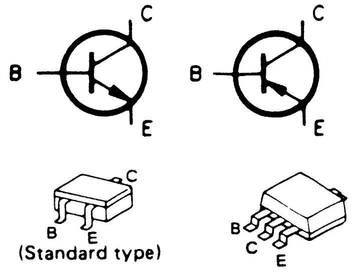
3.2.7 Semiconductors

1. Digital transistor

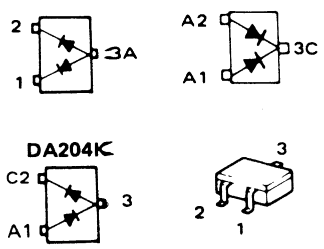


DTA114T
T mark only

2. Chip transistor



3. Chip diode



Note: The digital transistor includes built in resistors. If features small size and high reliability. Both PNP and NPN types are available.

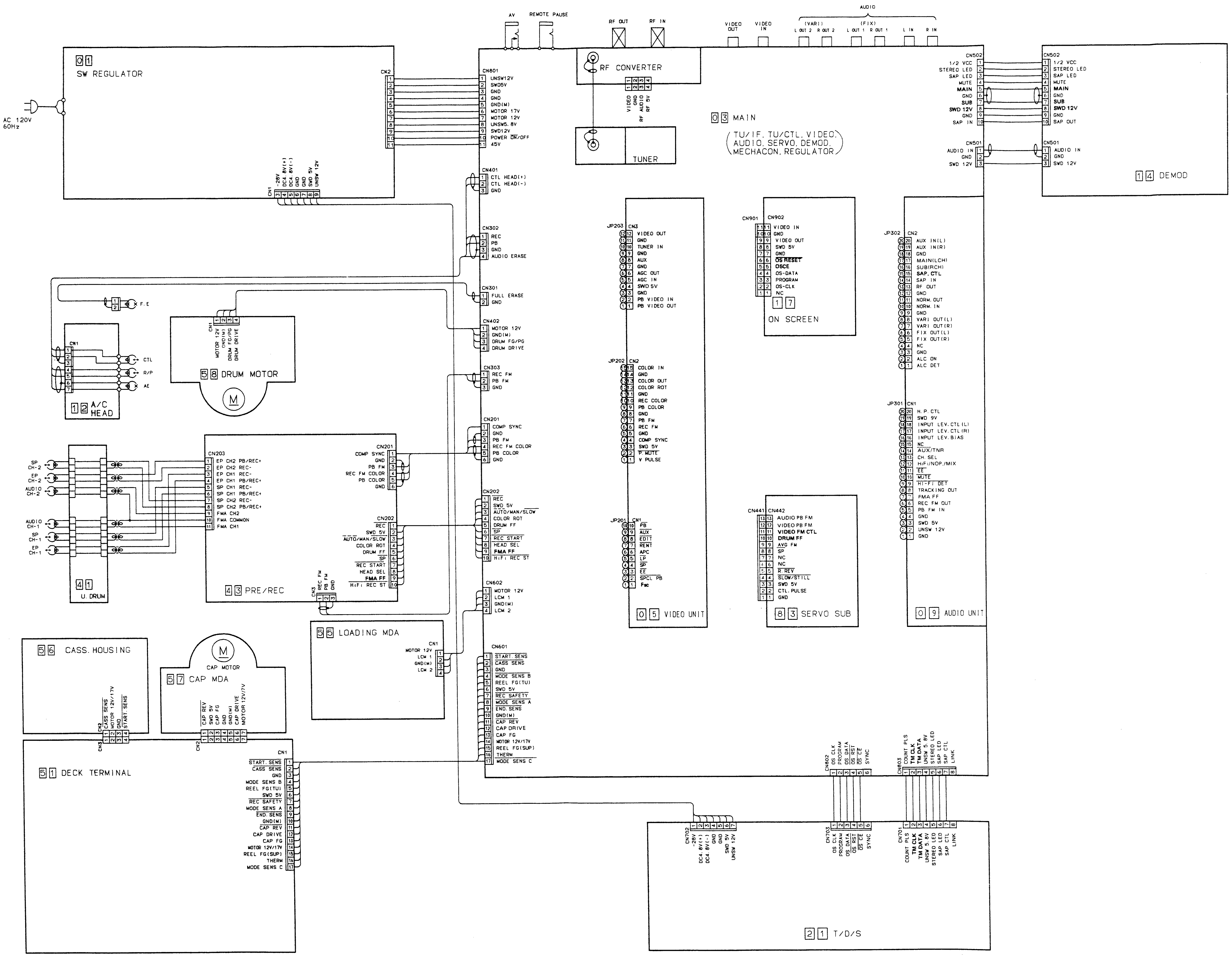
Uses: Inverter, interface, driver circuits.

3.3 ABBREVIATIONS USED IN THE SCHEMATIC DIAGRAMS

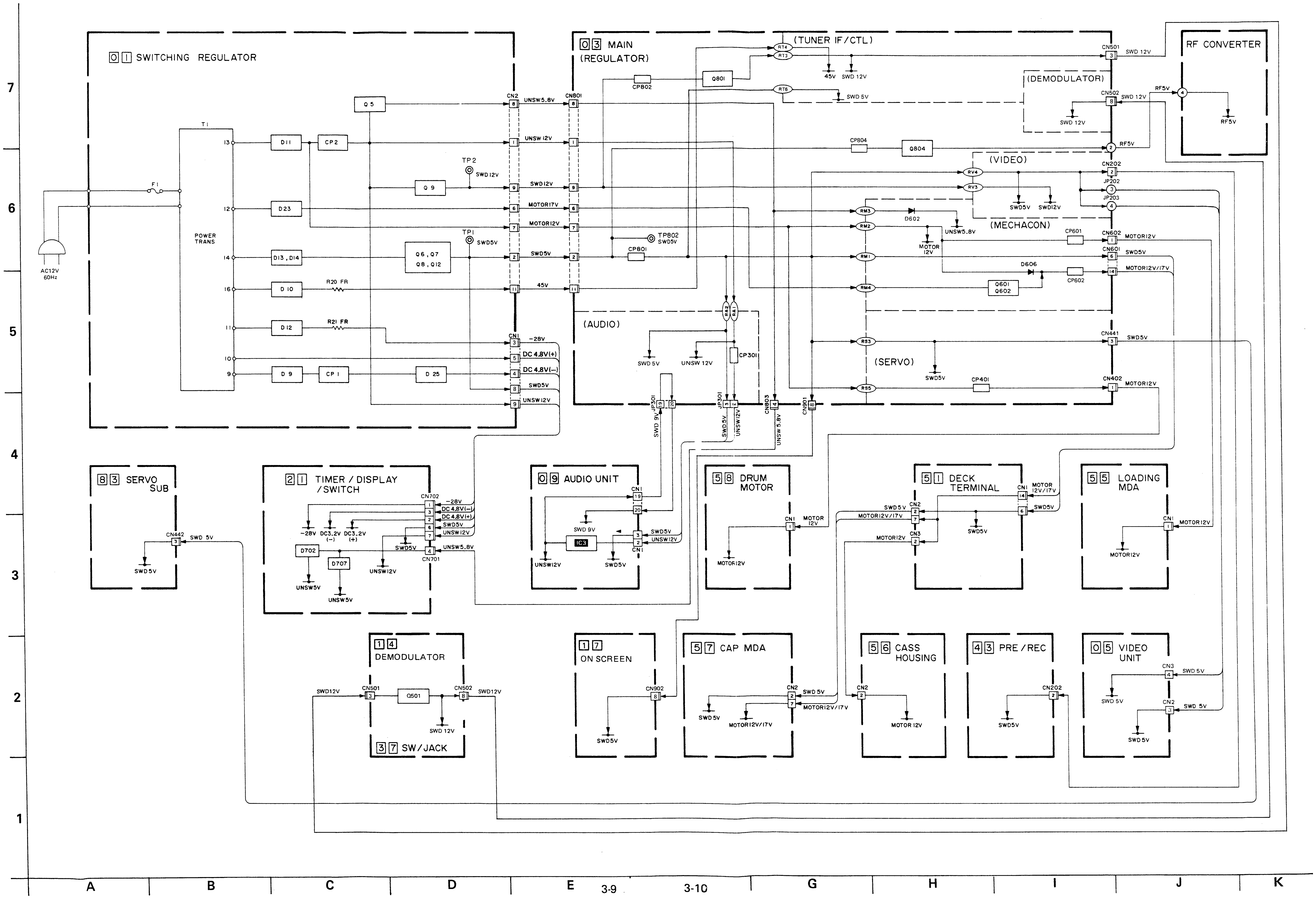
A	AC	: Alternating Current
	ACC	: Automatic Color Control
	ACCEL	: Acceleration
	A/CTL	: Audio/Control
	ADC	: Analog to Digital Converter
	ADD	: Adder
	ADRS	: Address
	ADJ	: Adjustment
	A DUB	: Audio Dubbing
	AE	: Audio Erase
	AEF	: Automatic Editing Function
	AFC	: Automatic Frequency Control
	AFT	: Automatic Fine Tuning
	AGC	: Automatic Gain Control
	AH	: Audio Head
	AL	: After Loading
	ALC	: Automatic Light Compensation Automatic Level Control
	AM	: Amplitude Modulation
	AMP	: Amplifier
	ANT	: Antenna
	APC	: Automatic Pedestal Control Automatic Phase Control
	APL	: Average Picture Level
	A/S/M	: Audio/Servo/Mechacon
	ASS'Y	: Assembly
	ATT	: Attenuator
	AUD	: Audio
	AUTO	: Automatic
	AUX	: Auxiliary
B	B	: Base
	BAL	: Balance
	BATT	: Battery
	BFP	: Burst Flag Pulse
	BIT	: Binary Digit
	BLK	: Black, Blanking
	BLU	: Blue
	BILING	: Bilingual
	BPF	: Bandpass Filter
	BRK	: Brake
	BRN	: Brown
	BT	: Band Tuning
	BUFF	: Buffer
	BW or B/W	: Black and White
C	C	: Capacitance, Collector, Color
	CAP	: Capstan, Capacitor
	CAR	: Carrier
	CARR	: Carrier
	CASS	: Cassette
	CCD	: Charge Coupled Device
	CCT	: Circuit
	CD	: Count Down
	CE	: Chip Enable
	CF	: Ceramic Filter
	CH	: Channel
	CHG	: Charge
	CHROMA	: Chrominance
	CLK	: Clock
	CLR	: Clear
	CMD	: Command
	CNT	: Count, Counter
	COL	: Color
	COM	: Common
	COMB	: Combination Comb Filter
	COMP	: Comparator Composite Compensation
	CONN	: Connector
	CONV	: Converter
	CP	: Circuit Protector Clamp Pulse
	CPC	: Capstan Phase Control
	CTL	: Control
D	D	: Drum, Digital, Diode, Drain
	DAC	: Digital to Analog Converter
	dB	: Decibel
	DC	: Direct Current
	DEC	: Decoder
	DEMOD	: Demodulator
	DEMUX	: Demultiplexer
	DET	: Detector
	DEV	: Deviation
	DIF	: Differential
	DISCR	: Discriminator
	DL	: Delay Line
	DOC	: Dropout Compensator
	DOD	: Drop Out Detector
	DPC	: Drum Phase Control
E	E	: Edit, Emitter
	E-E	: Electric to Electric
	EF	: Emitter-Follower
	EMP	: Emphasis
	EN	: Enable
	ENC	: Encoder
	ENV	: Envelope
	EP	: Extended Play
	EQ	: Equalizer
	ES	: Electronic Switch
	ESNS	: End Sensor
	EXP	: Expander
	EXT	: External
F	F	: Farad, Fuse
	F ADV	: Frame Advance
	FDP	: Fluorescent Display Panel
	FE	: Full Erase
	FET	: Field Effect Transistor
	FF	: Fast Forward Flipflop
	FG	: Frequency Generator
	FM	: Frequency Modulation
	FMA	: FM Audio
	FR	: Full Recording, Frame, Fusible Resistor
	FREQ	: Frequency
	F-V CONV	: Frequency to Voltage Converter
	FWD	: Forward
	FWD S	: Forward Search
G	G	: Green, Gate, Grid
	GEN	: Generator
	GND	: Ground
	GRN	: Green
	GRY	: Gray
H	H	: High, Henry, Hour
	HG	: Hall Generator
	HPF	: Highpass Filter
	Hz	: Herz
I	IC	: Integrated Circuit
	ID	: Identification (Pulse)
	IF	: Intermediate Frequency
	IFR	: Infrared
	IFT	: Intermediate Frequency Transformer
	IND	: Indicator
	INH	: Inhibit
	INS	: Insert
	INT	: Internal, Interrupt
	INV	: Inverter
	I/O	: Input/Output
	IR	: Infrared
L	L	: Low, Left
	LIM	: Limiter
	LIN	: Linearity
	LOAD	: Loading (Cassette)
	LP	: Long Play
	LPF	: Lowpass Filter
M	M	: Motor, Mega
	MAX	: Maximum
	MDA	: Motor Drive Amplifier
	MECHACON	: Mechanism Control
	MI	: Multiintroduce
	MIC	: Microphone
	MIN	: Minimum
	MIX	: Mixer, Mixing
	MMV	: Monostable Multivibrator
	MOD	: Modulation, Modulator
	MODEM	: Modulator-Demodulator
	MON	: Monitor
	MPX	: Multiplexer, Multiplex
	MS	: Mode Select
N	NAND	: Not-And
	NC	: Not Connected, Normally Closed
	NFB	: Negative Feedback
	NLN	: Non-Linear
	NO	: Normally Open
	NOR	: Normal, Not-Or
	NR	: Noise Reduction
O	OP	: Operation
	OPAMP	: Operational Amplifier
	ORN	: Orange
	OSC	: Oscillator
P	PB	: Playback
	PC	: Photocoupler, Pulse Counter
	PCM	: Pulse Code Modulation
	PG	: Pulse Generator
	PGM	: Program
	PI	: Photo Interrupter
	PIF	: Picture Intermediate Frequency
	PLA	: Programmable Logic Array
	PLL	: Phase Locked Loop
	POS	: Position
	p-p	: Peak-to-Peak
	PREAMP	: Preamplifier
	P/S	: Pause/Still
	PSC	: Pulse Swallowing Control
	PU	: Pickup
	PUT	: Programmable Unijunction Transistor
	PWM	: Pulse Width Modulation
	PWR	: Power
Q	Q	: Quality Factor
R	R	: Red, Right
	RA	: Resistor Array
	RAE	: Random Access Enable
	RAM	: Random Access Memory
	REC	: Recording
	REF	: Reference
	REG	: Regulated, Regulator
	REM	: Remote
	REMOCON	: Remote Control (Unit)
	REV	: Reverse
	REV S	: Reverse Search
	REW	: Rewind
	R/P	: Record/Playback
	RPT	: Repeat
	RST	: Reset
	RT	: Rotary Transformer
	RUN	: Running
	RY	: Relay
S	SAW	: Sawtooth, Surface Acoustic Wave
	SC	: Subcarrier, Simulcast
	SCH	: Search
	SEL	: Select, Selector
	SENS	: Sensor
	SEP	: Separator
	SF	: Source Follower
	SFF	: Short Fast Forward
	SIF	: Sound Intermediate Frequency
	SHARP	: Sharpness
	SN	: Signal to Noise Ratio
	SOL	: Solenoid
	SP	: Standard Play
	SREV	: Search Reverse
	SREW	: Short Rewind
	S/S	: Slow/Still
	SSG	: Sync Signal Generator
	SSNS	: Start Sensor
	STD	: Strobe Data, Standard
	SUP	: Supply
	SW	: Switch
	SWD	: Switched
	SYNC	: Synchronization
T	TF	: Thermal Fuse
	TIM	: Timing
	TK	: Tracking
	TNR	: Tuner
	TP	: Test Point
	TPZD	: Trapezoid
	TR	: Transistor, Trimmer
	TRANS	: Transformer
	TU	: Take-up
U	UL	: Unloading
	UNREG	: Unregulated
	UNSW	: Unswitched
V	V	: Vertical, Volt
	VCO	: Voltage Controlled Oscillator
	VD	: Vertical Drive
	VIF	: Video Intermediate Frequency
	VLT	: Violet
	VR	: Variable Resistor
	VS	: Video and Sync
	V/T	: Video/Television
	V/U	: VHF/UHF
	VXO	: Variable Crystal Oscillator
W	W	: Watt
	W & D	: White and Dark
	WHT	: White
X	XTAL	: Crystal
Y	Y	: Luminance
	YEL	: Yellow

3.4 BOARD INTERCONNECTIONS

8 3	SERVO SUB
5 8	DRUM MOTOR
5 7	CAP MDA
5 6	CASS HOUSING
5 5	LOADING MDA
5 1	DECK TERMINAL
4 3	PRE/REC AMP
4 2	
4 1	U. DRUM
3 6	
3 5	
2 2	
2 1	T/D/S
1 7	ON SCREEN
1 4	DEMOD
1 2	A/C HEAD
0 9	AUDIO UNIT
0 6	
0 5	VIDEO UNIT
0 3	MAIN
0 1	SW REGULATOR
N O	NAME

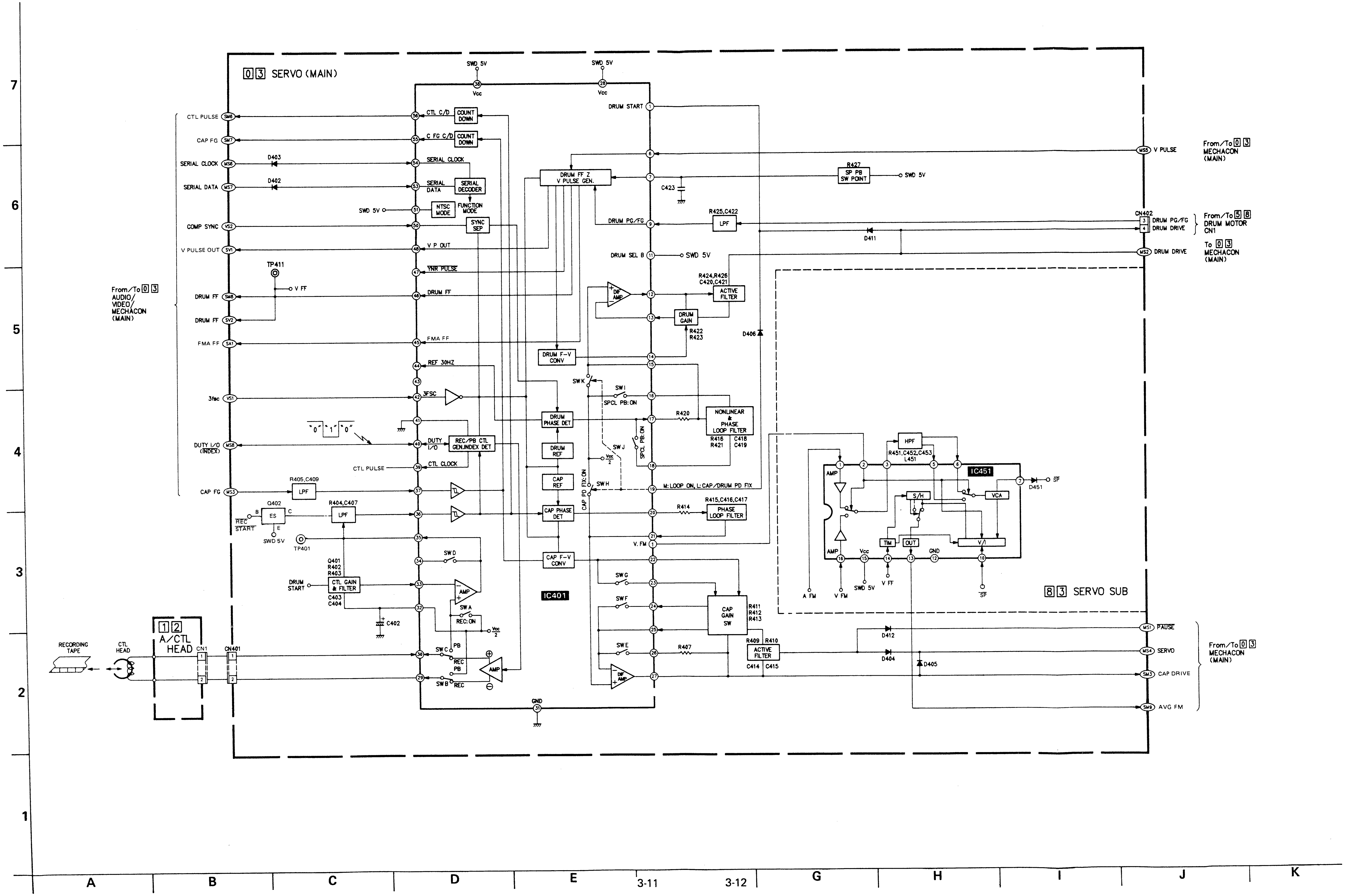

4
3
2
1
A
B
C
D
E
F
01 SW REGULATOR
AC 120V 60Hz
CN2
CN1 -28V DC4.8V(+) DC4.8V(-) GND GND SWD 5V UNSW 12V
03 MAIN
(TU/IF, TU/CTL, VIDEO, AUDIO, SERVO, DEMOD, MECHACON, REGULATOR)
AV
REMOTE PAUSE
RF OUT
RF IN
VIDEO OUT
VIDEO IN
AUDIO
(VARI) L OUT 2 R OUT 2
(FIX) L OUT 1 R OUT 1
L IN
R IN
RF CONVERTER
VIDEO GND RF AUDIO RF 5V
TUNER
CN801 UNSW12V SWD5V GND GND GND(M) MOTOR 17V MOTOR 12V UNSW5.8V SWD12V POWER ON/OFF 45V
CN401 CTL HEAD(+) CTL HEAD(-) GND
CN302 REC PB GND AUDIO ERASE
CN301 FULL ERASE GND
CN402 MOTOR 12V GND(M) DRUM FG/PG DRUM DRIVE
CN303 REC FM PB FM GND
CN201 COMP SYNC GND PB FM REC FM COLOR PB COLOR GND
CN202 REC SWD 5V AUTO/MAN/SLOW COLOR ROT DRUM FF SP REC START HEAD SEL FMA FF HiFi REC ST
CN602 MOTOR 12V LCM 1 GND(M) LCM 2
CN601 START.SENS CASS SENS GND MODE SENS B REEL FG(TU) SWD 5V REC SAFETY MODE SENS A END.SENS GND(M) CAP REV CAP DRIVE CAP FG MOTOR 12V/17V REEL FG(SUP) THERM MODE SENS C
CN502 1/2 VCC STEREO LED SAP LED MUTE MAIN GND SUB SWD 12V GND SAP IN
CN501 AUDIO IN GND SWD 12V
14 DEMOD
CN502 1/2 VCC STEREO LED SAP LED MUTE MAIN GND SUB SWD 12V GND SAP OUT
CN501 AUDIO IN GND SWD 12V
05 VIDEO UNIT
JP203 CN3 VIDEO OUT GND TUNER IN GND AUX GND AGC OUT AGC IN SWD 5V GND PB VIDEO IN PB VIDEO OUT
JP202 CN2 COLOR IN GND COLOR OUT COLOR ROT GND REC COLOR PB COLOR GND PB FM REC FM GND COMP SYNC SWD 5V P.MUTE V PULSE
JP201 CN1 PB AUX EDIT RENT APC LP SP EE SPCL PB Fsc
17 ON SCREEN
CN901 CN902 VIDEO IN GND VIDEO OUT SWD 5V GND OS RESET OSCE OS-DATA PROGRAM OS-CLK NC
83 SERVO SUB
CN441 CN442 AUDIO PB FM VIDEO PB FM VIDEO FM CTL DRUM FF AVG FM SP NC NC R.REV SLOW/STILL SWD 5V CTL.PULSE GND
09 AUDIO UNIT
JP302 CN2 AUX IN(L) AUX IN(R) GND MAIN(LCH) SUB(RCH) SAP.CTL SAP IN RF OUT GND NORM.OUT NORM.IN GND VARI OUT(L) VARI OUT(R) FIX OUT(L) FIX OUT(R) NC GND ALC ON ALC DET
JP301 CN1 H.P.CTL SWD 9V INPUT LEV.CTL(L) INPUT LEV.CTL(R) INPUT LEV.BIAS NC AUX/TNR CH.SEL HiFi/NOP./MIX EE MUTE HI-FI DET TRACKING OUT FMA FF REC FM OUT PB FM IN GND SWD 5V UNSW 12V GND
CN802 OS CLK PROGRAM OS DATA OS RST OS CE SYNC
CN803 COUNT PLS TM CLK TM DATA UNSW 5.8V STEREO LED SAP LED SAP CTL LINK
21 T/D/S
CN702 -28V DC4.8V(+) DC4.8V(-) GND GND SWD 5V UNSW 12V
CN703 OS CLK PROGRAM OS DATA OS RST OS CE SYNC
CN701 COUNT PLS TM CLK TM DATA UNSW 5.8V STEREO LED SAP LED SAP CTL LINK
F.E
12 A/C HEAD
CN1
CTL
R/P
AE
58 DRUM MOTOR
CN1 MOTOR 12V GND(M) DRUM FG/PG DRUM DRIVE
M
SP CH-2
EP CH-2
AUDIO CH-2
AUDIO CH-1
SP CH-1
EP CH-1
41 U. DRUM
43 PRE/REC
CN203 EP CH2 PB/REC+ EP CH2 REC- EP CH1 REC- EP CH1 PB/REC+ SP CH1 REC- SP CH1 PB/REC+ SP CH2 REC- SP CH2 PB/REC+ FMA CH2 FMA COMMON FMA CH1
CN201 COMP SYNC GND PB FM REC FM COLOR PB COLOR GND
CN202 REC SWD 5V AUTO/MAN/SLOW COLOR ROT DRUM FF SP REC START HEAD SEL FMA FF HiFi REC ST
CN3 REC FM PB FM GND
55 LOADING MDA
CN1 MOTOR 12V LCM 1 GND(M) LCM 2
56 CASS. HOUSING
CN2 CASS SENS MOTOR 12V/17V GND START. SENS
CN3
57 CAP MDA
CAP MOTOR
CAP REV SWD 5V CAP FG GND GND(M) CAP DRIVE MOTOR 12V/7V
CN2
51 DECK TERMINAL
CN1 START. SENS CASS SENS GND MODE SENS B REEL FG(TU) SWD 5V REC SAFETY MODE SENS A END. SENS GND(M) CAP REV CAP DRIVE CAP FG MOTOR 12V/17V REEL FG(SUP) THERM MODE SENS C

3.5 SWITCHING REGULATOR BLOCK DIAGRAM



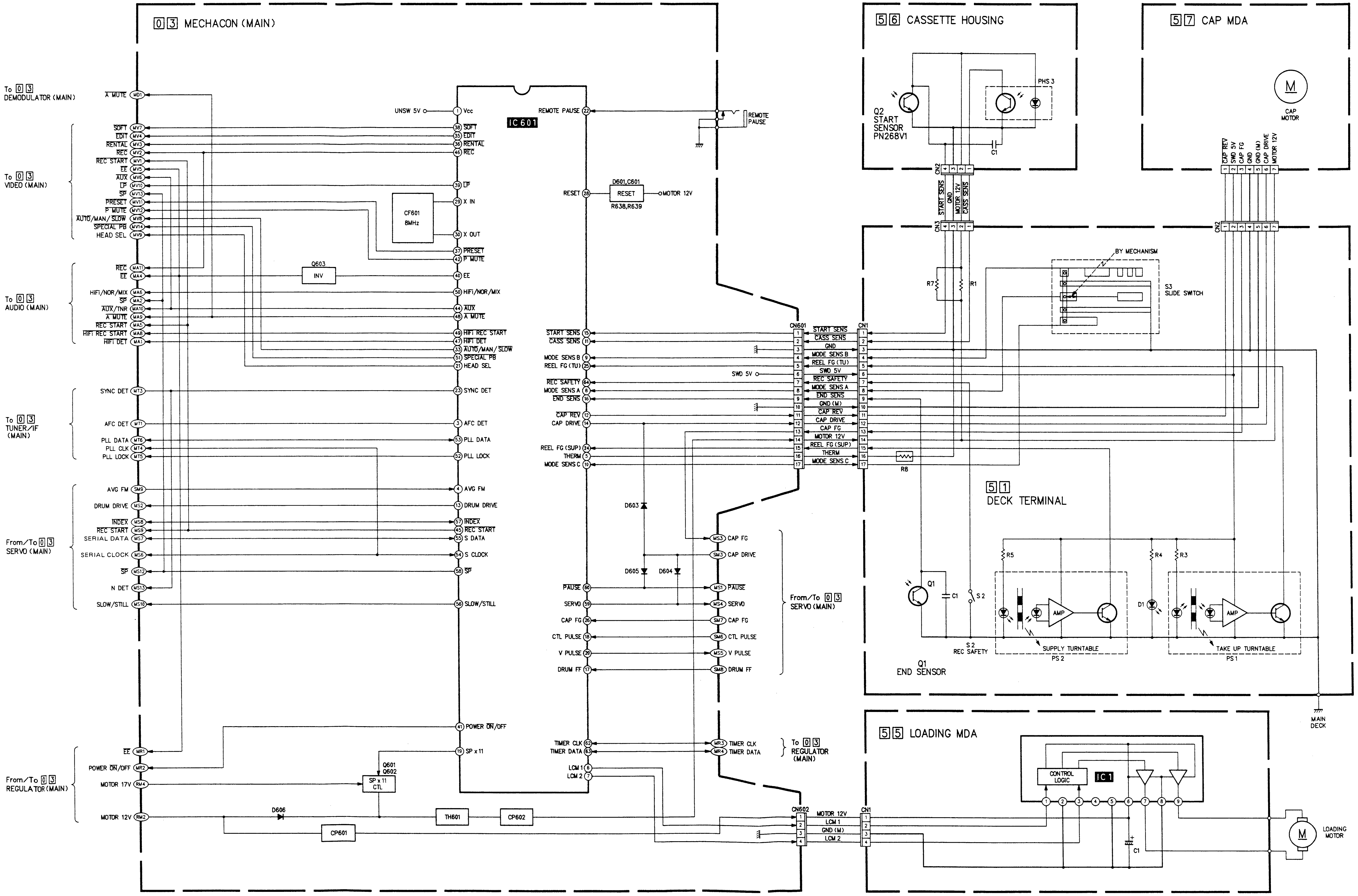
01 SWITCHING REGULATOR
T1
POWER TRANS
F1
AC12V 60Hz
Q5
D11
CP2
TP2
SWD12V
Q9
D23
TP1
SWD5V
D13, D14
Q6, Q7 Q8, Q12
D10
R20 FR
D12
R21 FR
D9
CP1
D25
CN2
UNSW5.8V
UNSW 12V
SWD12V
MOTOR17V
MOTOR12V
SWD5V
45V
CN1
-28V
DC 4.8V(+)
DC 4.8V(–)
UNSW12V
CN801
03 MAIN (REGULATOR)
(TUNER IF/CTL)
RT4
RT3
RT6
CP802
Q801
45V
SWD 12V
SWD 5V
CP804
Q804
TP802 SWD5V
CP801
(AUDIO)
RA2
RA1
SWD 5V
UNSW 12V
CP301
JP301
SWD 9V
SWD5V
UNSW12V
CN803
UNSW 5.8V
CN901
(DEMODULATOR)
CN501
CN502
SWD 12V
RF5V
RF CONVERTER
(VIDEO)
RV4
RV3
CN202
JP202
JP203
SWD5V
SWD12V
RM3
RM2
RM1
RM4
D602
UNSW5.8V
(MECHACON)
MOTOR 12V
CP601
CN602
MOTOR12V
CN601
SWD5V
D606
CP602
MOTOR12V/17V
Q601 Q602
(SERVO)
RS3
RS5
CP401
CN441
CN402
83 SERVO SUB
CN442
SWD 5V
21 TIMER / DISPLAY / SWITCH
CN702
-28V
DC4.8V(–)
DC4.8V(+)
SWD5V
UNSW12V
DC3.2V (–)
DC3.2V (+)
D702
D707
UNSW5V
UNSW5.8V
CN701
09 AUDIO UNIT
CN1
SWD 9V
IC3
58 DRUM MOTOR
MOTOR 12V
51 DECK TERMINAL
MOTOR 12V/17V
CN2
CN3
MOTOR12V/17V
55 LOADING MDA
14 DEMODULATOR
SWD12V
Q501
SWD 12V
37 SW/JACK
17 ON SCREEN
CN902
57 CAP MDA
56 CASS HOUSING
MOTOR 12V
43 PRE/REC
05 VIDEO UNIT
1
2
3
4
5
6
7
A
B
C
D
E
G
H
I
J
K

3.6 SERVO BLOCK DIAGRAM



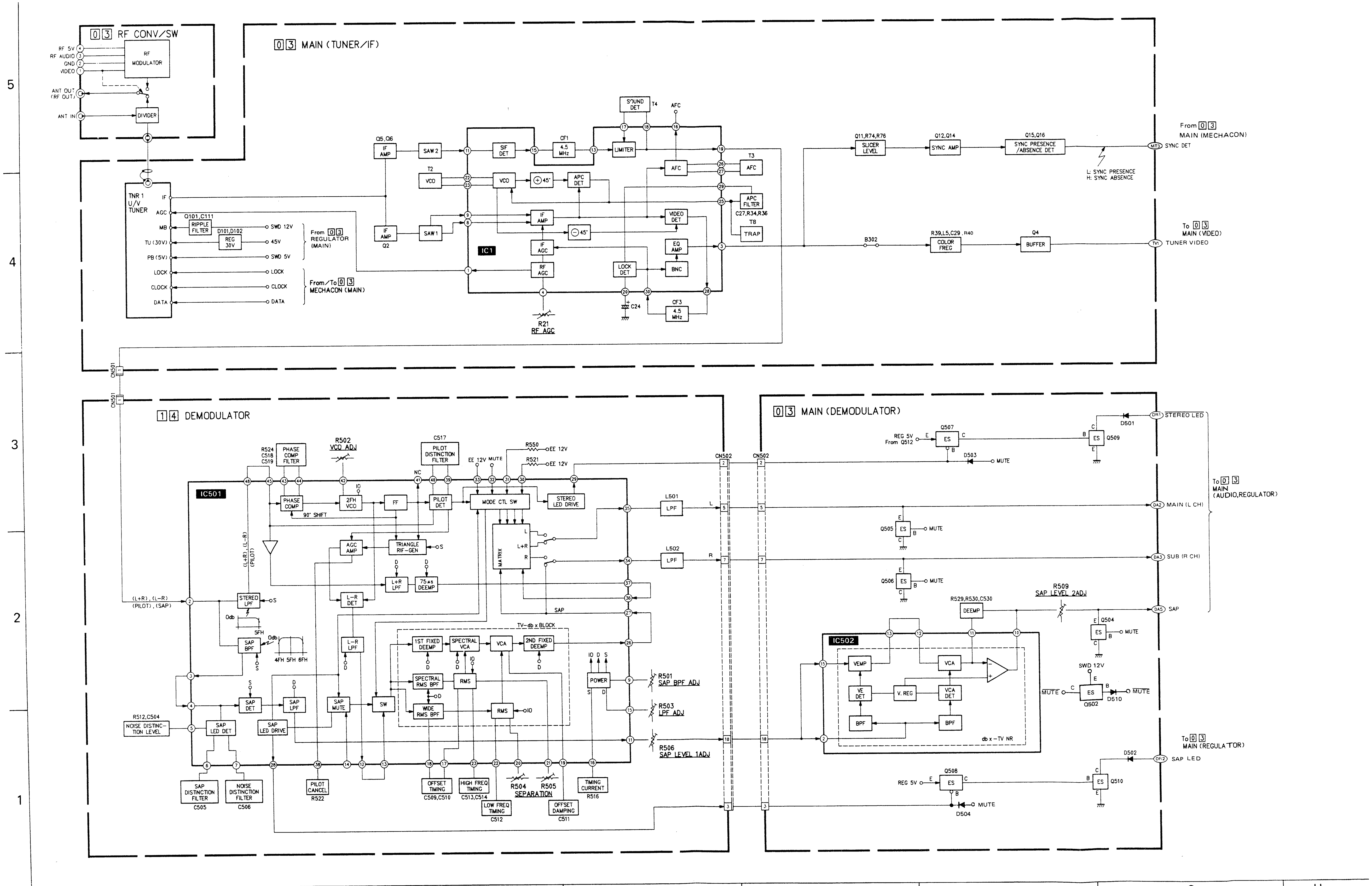
03 SERVO (MAIN)
SWD 5V
Vcc
CTL PULSE
CAP FG
SERIAL CLOCK
SERIAL DATA
COMP SYNC
V PULSE OUT
DRUM FF
FMA FF
3fsc
DUTY I/O (INDEX)
From/To 03 AUDIO/ VIDEO/ MECHACON (MAIN)
D403
D402
TP411
V FF
CTL C/D
COUNT DOWN
C FG C/D
SERIAL CLOCK
SERIAL DATA
SERIAL DECODER
NTSC MODE
FUNCTION MODE
SYNC SEP
V P OUT
YNR PULSE
FMA FF
REF 30HZ
3FSC
DUTY I/O
REC/PB CTL GEN.INDEX DET
CTL CLOCK
CTL PULSE
"0" "1" "0"
R405,C409
LPF
Q402
ES
REC START
SWD 5V
R404,C407
TP401
Q401 R402 R403
DRUM START
CTL GAIN & FILTER
C403 C404
C402
SWD
AMP
SW A
REC:ON
Vcc/2
SW C
PB
REC
SW B
RECORDING TAPE
CTL HEAD
12 A/CTL HEAD
CN1
CN401
GND
IC401
DRUM FF Z V PULSE GEN.
DRUM F-V CONV
DRUM PHASE DET
DRUM REF
CAP REF
CAP PHASE DET
CAP F-V CONV
DRUM START
C423
DRUM PG/FG
DRUM SEL B
SWD 5V
DIF AMP
R424,R426 C420,C421
ACTIVE FILTER
DRUM GAIN
R422 R423
SW K
SW I
SPCL PB:ON
SW J
CAP PD FIX:ON
SW H
R420
NONLINEAR & PHASE LOOP FILTER
R416 R421 C418 C419
M:LOOP ON, L:CAP/DRUM PD FIX
R414
R415,C416,C417
PHASE LOOP FILTER
V. FM
SW G
SW F
SW E
R407
CAP GAIN SW
R411 R412 R413
R409 R410
ACTIVE FILTER
C414 C415
R427
SP PB SW POINT
R425,C422
D411
D406
D412
D404
D405
V PULSE
From/To 03 MECHACON (MAIN)
CN402
DRUM PG/FG
DRUM DRIVE
From/To 58 DRUM MOTOR CN1
To 03 MECHACON (MAIN)
HPF
R451,C452,C453 L451
IC451
AMP
S/H
VCA
TIM
OUT
V/I
Vcc
GND
D451
SP
A FM
V FM
SWD 5V
V FF
83 SERVO SUB
PAUSE
SERVO
CAP DRIVE
AVG FM
From/To 03 MECHACON (MAIN)
1
2
3
4
5
6
7
A
B
C
D
E
G
H
I
J
K

3.7 SYSTEM CONTROL BLOCK DIAGRAM



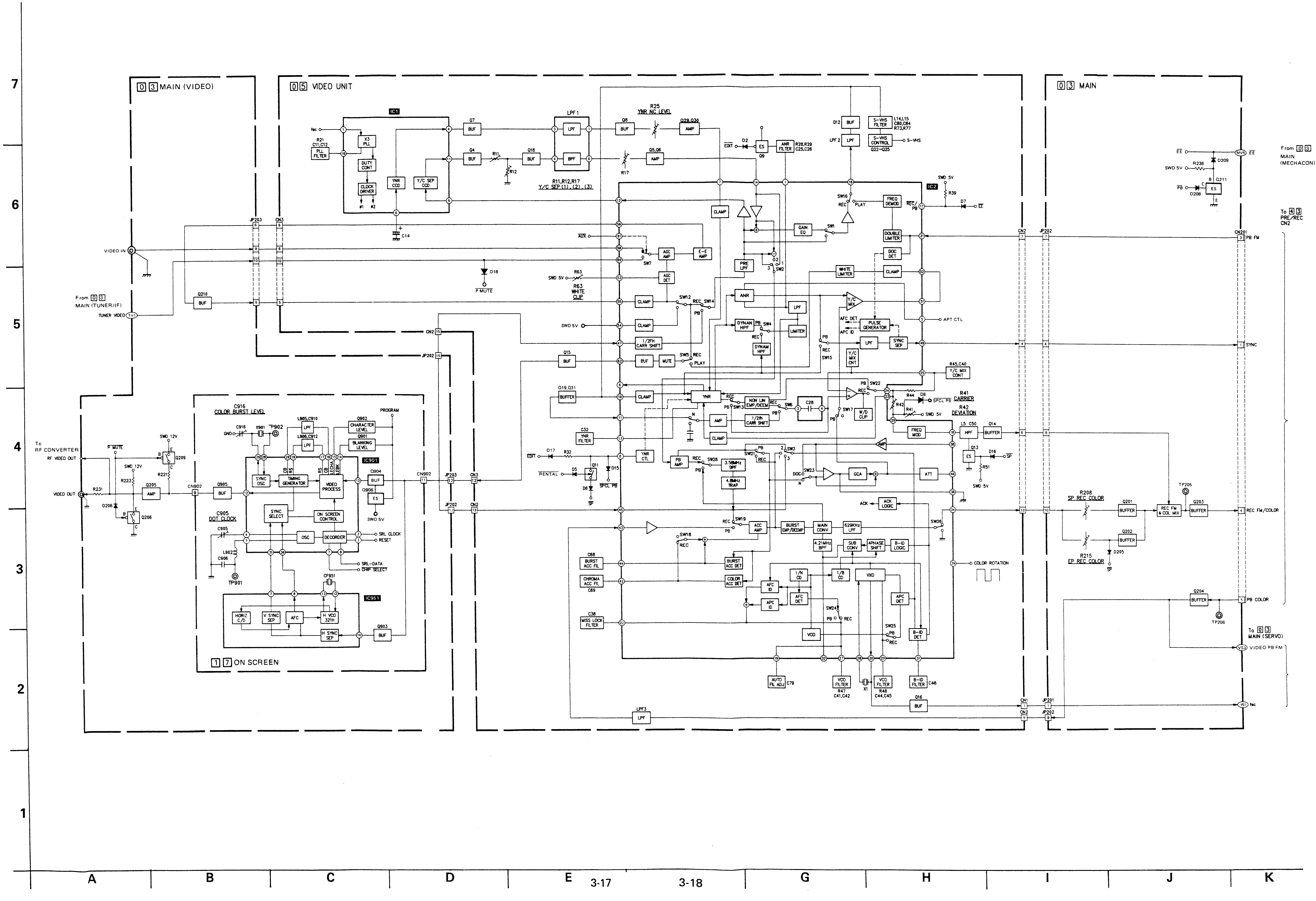
03 MECHACON (MAIN)
IC601
To 03 DEMODULATOR (MAIN)
A MUTE MD1
To 03 VIDEO (MAIN)
SOFT MV7
EDIT MV4
RENTAL MV3
REC MV2
REC START MV1
EE MV5
AUX MV6
LP MV10
SP MV13
PRESET MV11
P MUTE MV12
AUTO/MAN/SLOW MV8
SPECIAL PB MV14
HEAD SEL MV9
To 03 AUDIO (MAIN)
REC MA11
EE MA4
HIFI/NOR/MIX MA6
SP MA2
AUX/TNR MA10
A MUTE MA9
REC START MA5
HIFI REC START MA8
HIFI DET MA1
To 03 TUNER/IF (MAIN)
SYNC DET MT3
AFC DET MT1
PLL DATA MT6
PLL CLK MT4
PLL LOCK MT5
From/To 03 SERVO (MAIN)
AVG FM SM9
DRUM DRIVE MS2
INDEX MS8
REC START MS9
SERIAL DATA MS7
SERIAL CLOCK MS6
SP MS12
N DET MS13
SLOW/STILL MS10
From/To 03 REGULATOR (MAIN)
EE MR1
POWER ON/OFF MR2
MOTOR 17V RM4
MOTOR 12V RM2
UNSW 5V
1 Vcc
38 SOFT
35 EDIT
36 RENTAL
46 REC
39 LP
29 X IN
30 X OUT
37 PRESET
42 P MUTE
40 EE
50 HIFI/NOR/MIX
44 AUX
48 A MUTE
49 HIFI REC START
47 HIFI DET
33 AUTO/MAN/SLOW
51 SPECIAL PB
21 HEAD SEL
23 SYNC DET
3 AFC DET
53 PLL DATA
52 PLL LOCK
4 AVG FM
13 DRUM DRIVE
57 INDEX
45 REC START
55 S DATA
54 S CLOCK
58 SP
56 SLOW/STILL
41 POWER ON/OFF
19 SP x 11
CF601 8MHz
Q603 INV
Q601 Q602 SP x 11 CTL
D606
TH601
CP602
CP601
REMOTE PAUSE 22
REMOTE PAUSE
RESET 28
D601,C601 RESET R638,R639
MOTOR 12V
START SENS 15
CASS SENS 11
MODE SENS B 9
REEL FG (TU) 25
REC SAFETY 64
MODE SENS A 8
END SENS 16
CAP REV 12
CAP DRIVE 14
REEL FG (SUP) 24
THERM 5
MODE SENS C 10
SWD 5V
D603
D605
D604
PAUSE 60
SERVO 59
CAP FG 26
CTL PULSE 18
V PULSE 20
DRUM FF 17
MS3 CAP FG
SM3 CAP DRIVE
MS1 PAUSE
MS4 SERVO
SM7 CAP FG
SM6 CTL PULSE
MS5 V PULSE
SM8 DRUM FF
From/To 03 SERVO (MAIN)
TIMER CLK 62
TIMER DATA 63
LCM 1 6
LCM 2 7
MR3 TIMER CLK
MR4 TIMER DATA
To 03 REGULATOR (MAIN)
CN601
START SENS
CASS SENS
GND
MODE SENS B
REEL FG (TU)
SWD 5V
REC SAFETY
MODE SENS A
END SENS
GND (M)
CAP REV
CAP DRIVE
CAP FG
MOTOR 12V
REEL FG (SUP)
THERM
MODE SENS C
CN1
CN602
MOTOR 12V
LCM 1
GND (M)
LCM 2
56 CASSETTE HOUSING
Q2 START SENSOR PN268V1
PHS 3
C1
CN2
START SENS
GND
MOTOR 12V
CASS SENS
CN3
57 CAP MDA
M
CAP MOTOR
CAP REV
SWD 5V
CAP FG
GND
GND (M)
CAP DRIVE
MOTOR 12V
CN2
R7
R1
BY MECHANISM
S3 SLIDE SWITCH
R8
51 DECK TERMINAL
R5
R4
R3
Q1
C1
S2
AMP
D1
S2 REC SAFETY
SUPPLY TURNTABLE PS 2
TAKE UP TURNTABLE PS 1
Q1 END SENSOR
MAIN DECK
55 LOADING MDA
CONTROL LOGIC
IC1
C1
M
LOADING MOTOR
6
5
4
3
2
1
A
B
C
D
E
F
G
H

3.8 TUNER IF AND DEMODULATOR BLOCK DIAGRAMS

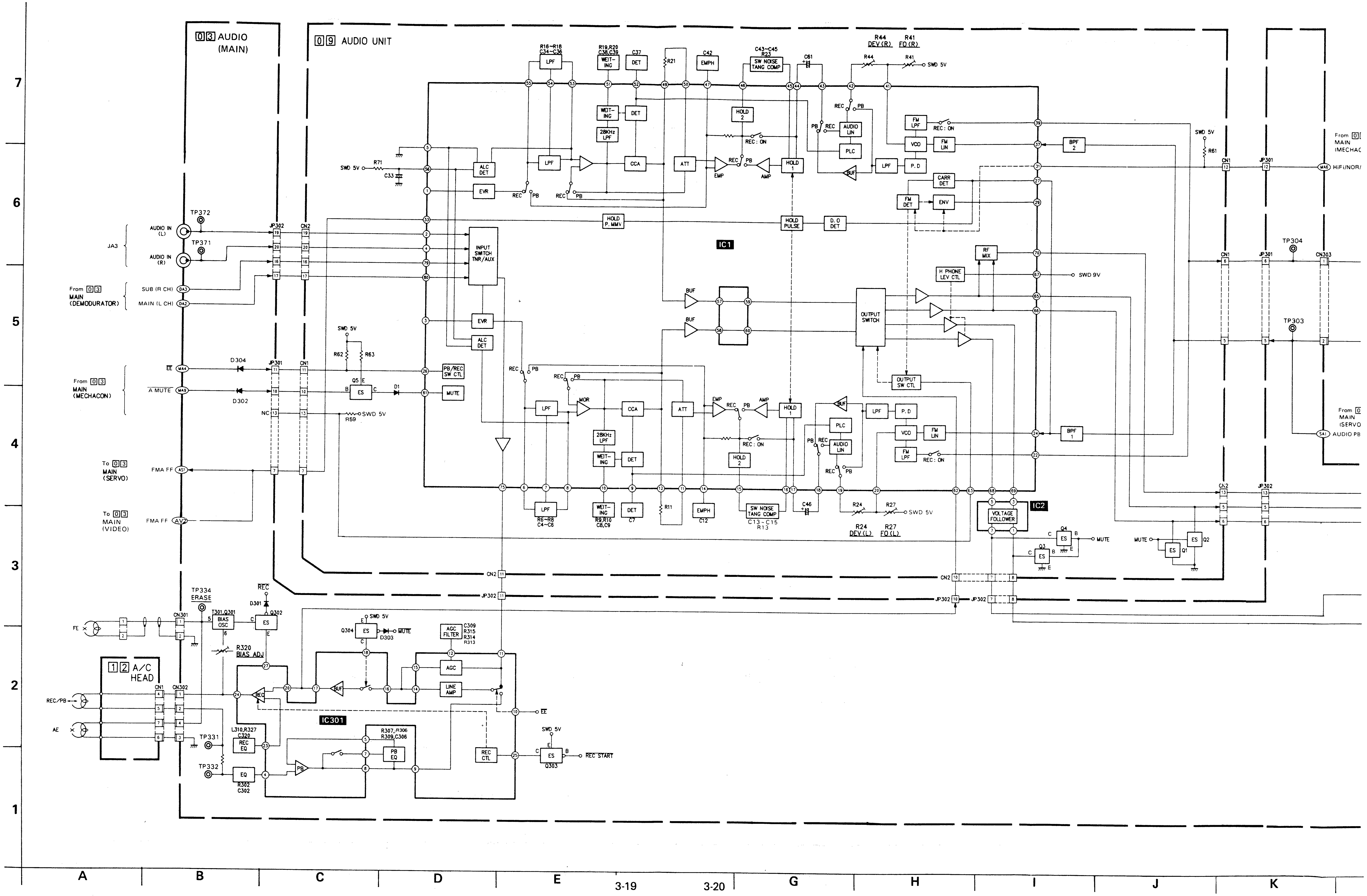


03 RF CONV/SW
RF 5V
RF AUDIO
GND
VIDEO
RF MODULATOR
ANT OUT (RF OUT)
ANT IN
DIVIDER
03 MAIN (TUNER/IF)
TNR1 U/V TUNER
IF
AGC
MB
TU (30V)
PB (5V)
LOCK
CLOCK
DATA
Q101,C111
RIPPLE FILTER
D101,D102
REG 30V
SWD 12V
45V
SWD 5V
From 03 REGULATOR (MAIN)
From/To 03 MECHACON (MAIN)
Q5,Q6
IF AMP
Q2
SAW 2
SAW 1
T2
VCO
SIF DET
CF1 4.5 MHz
SOUND DET
T4
AFC
LIMITER
+45°
−45°
APC DET
IF AMP
IF AGC
RF AGC
IC1
VIDEO DET
EQ AMP
BNC
LOCK DET
T3
APC FILTER
C27,R34,R36
T8
TRAP
C24
CF3 4.5 MHz
R21 RF AGC
Q11,R74,R76
SLICER LEVEL
Q12,Q14
SYNC AMP
Q15,Q16
SYNC PRESENCE /ABSENCE DET
L: SYNC PRESENCE
H: SYNC ABSENCE
From 03 MAIN (MECHACON)
MT3 SYNC DET
B302
R39,L5,C29,R40
COLOR FREG
Q4
BUFFER
To 03 MAIN (VIDEO)
TV1 TUNER VIDEO
CN501
14 DEMODULATOR
IC501
R524 C518 C519
PHASE COMP FILTER
R502 VCO ADJ
C517
PILOT DISTINCTION FILTER
NC
EE 12V
MUTE
R550
EE 12V
R521
EE 12V
PHASE COMP
90° SHIFT
2FH VCO
FF
PILOT DET
MODE CTL SW
STEREO LED DRIVE
AGC AMP
TRIANGLE RIF-GEN
L+R LPF
75µs DEEMP
MATRIX
L
L+R
R
(L+R), (L−R) (PILOT)
(L+R), (L−R) (PILOT), (SAP)
STEREO LPF
0db
5FH
SAP BPF
4FH 5FH 6FH
L−R DET
L−R LPF
SAP DET
SAP LPF
SAP MUTE
SW
SAP
TV-db x BLOCK
1ST FIXED DEEMP
SPECTRAL VCA
VCA
2ND FIXED DEEMP
SPECTRAL RMS BPF
RMS
WIDE RMS BPF
RMS
POWER
R501 SAP BPF ADJ
R503 LPF ADJ
R506 SAP LEVEL 1ADJ
R512,C504
NOISE DISTINCTION LEVEL
SAP LED DET
SAP LED DRIVE
SAP DISTINCTION FILTER C505
NOISE DISTINCTION FILTER C506
PILOT CANCEL R522
OFFSET TIMING C509,C510
HIGH FREQ TIMING C513,C514
LOW FREQ TIMING C512
R504 R505 SEPARATION
OFFSET DAMPING C511
TIMING CURRENT R516
L501 LPF
L502 LPF
CN502
03 MAIN (DEMODULATOR)
REG 5V From Q512
Q507
ES
D503
MUTE
D501
Q509
DR1 STEREO LED
Q505
Q506
DA2 MAIN (L CH)
DA3 SUB (R CH)
To 03 MAIN (AUDIO,REGULATOR)
R529,R530,C530
DEEMP
R509 SAP LEVEL 2ADJ
DA5 SAP
Q504
IC502
VEMP
VCA
VE DET
V. REG
VCA DET
BPF
BPF
dbx-TV NR
SWD 12V
MUTE
Q502
D510
To 03 MAIN (REGULATOR)
D502
DR2 SAP LED
Q508
REG 5V
Q510
D504
1
2
3
4
5
A
B
C
D
E
F
G
H

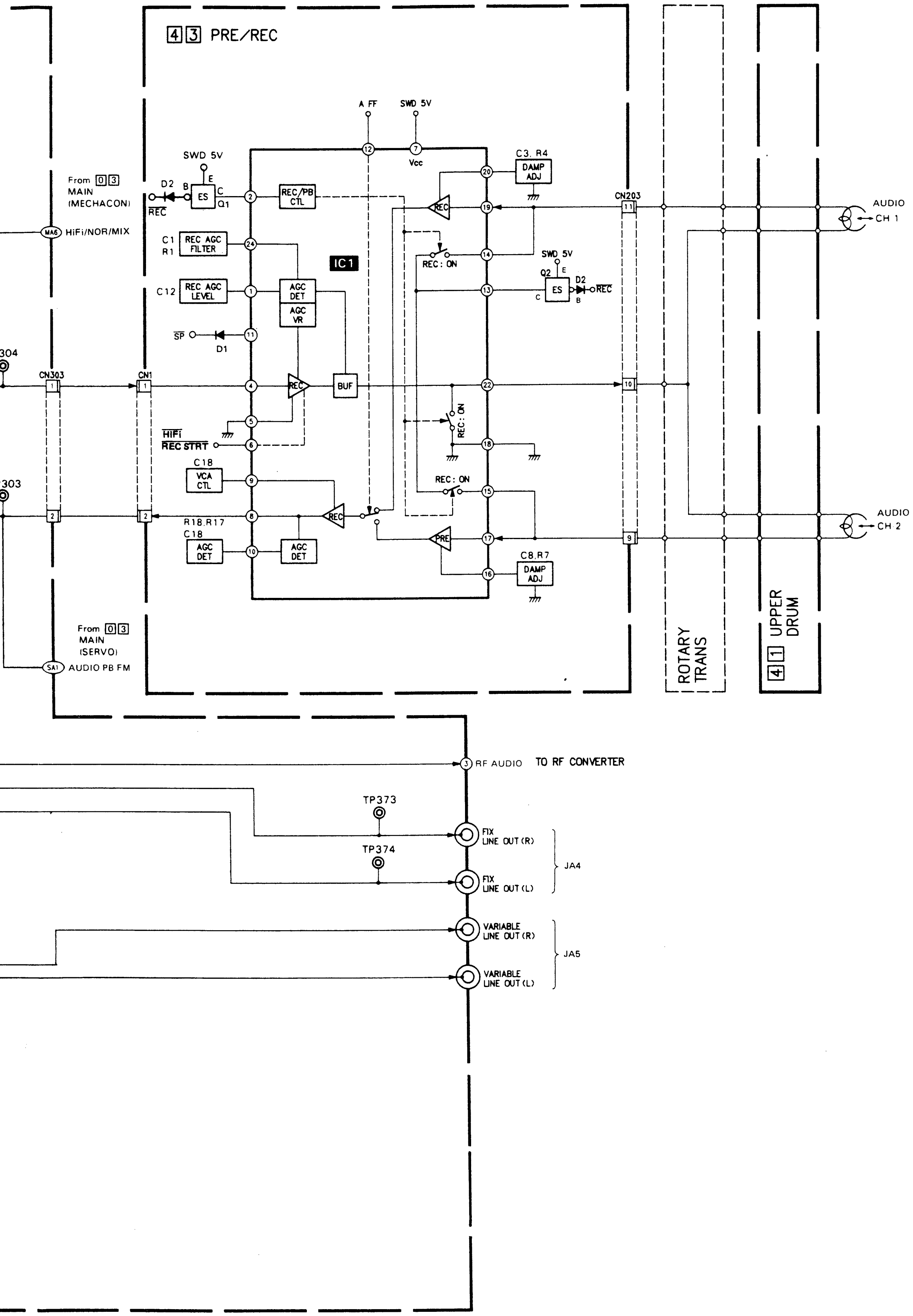
3.9 VIDEO & VIDEO UNIT BLOCK DIAGRAM


03 MAIN (VIDEO)
05 VIDEO UNIT
03 MAIN
17 ON SCREEN
IC1
IC2
IC901
IC951
X3 PLL
PLL FILTER
DUTY CONT
CLOCK DRIVER
YNR CCD
Y/C SEP CCD
LPF 1
LPF
BPF
BUF
R11,R12,R17
Y/C SEP (1), (2), (3)
R25
YNR NC LEVEL
Q29,Q30
AMP
Q5,Q6
S-VHS FILTER
S-VHS CONTROL
L14,L15 C80,C84 R73,R77
Q22~Q25
S-VHS
ANR FILTER
R28,R29 C25,C26
LPF 2
FREQ DEMOD
DOUBLE LIMITER
DOC DET
CLAMP
WHITE LIMITER
GAIN EQ
AGC AMP
AGC DET
E-E AMP
PRE LPF
ANR
DYNAM HPF
LIMITER
PULSE GENERATOR
SYNC SEP
Y/C MIX
Y/C MIX CONT
APT CTL
1/2FH CARR SHIFT
MUTE
YNR
NON LIN EMP/DEEM
C28
W/D CLIP
1/2fh CARR SHIFT
FREQ MOD
HPF
BUFFER
ES
ATT
GCA
PB AMP
3.58MHz BPF
4.8MHz TRAP
YNR CTL
ACK LOGIC
ACC AMP
BURST EMP/DEEMP
MAIN CONV
629KHz LPF
4.21MHz BPF
SUB CONV
4PHASE SHIFT
B-ID LOGIC
BURST ACC DET
COLOR ACC DET
AFC ID
APC ID
AFC DET
1/N CD
1/8 CD
VXO
APC DET
VCO
B-ID DET
AUTO FIL ADJ C79
VCO FILTER R47 C41,C42
VCO FILTER R48 C44,C45
B-ID FILTER C46
X1
Q16
C68 BURST ACC FIL
CHROMA ACC FIL C69
C38 MISS LOCK FILTER
C32 YNR FILTER
LPF3
COLOR ROTATION
R41 CARRIER
R42 DEVIATION
R45,C40
L5 C50
Q14
Q13
D16
R51
SWD 5V
SW1
SW2
SW3
SW4
SW5
SW6
SW7
SW12
SW13
SW14
SW15
SW16
SW17
SW18
SW19
SW21
SW22
SW23
SW24
SW25
SW26
SW28
REC
PB
PLAY
EDIT
RENTAL
AUX
DOC
ACK
SPCL PB
SP
EE
R63 WHITE CLIP
D18
P MUTE
Q210
Q15
Q19,Q31
VIDEO IN
From 03 MAIN (TUNER/IF)
TUNER VIDEO
TV1
JP203
CN3
CN2
JP202
CN902
To RF CONVERTER
RF VIDEO OUT
VIDEO OUT
R231
D206
Q205
Q206
Q209
R221
R223
SWD 12V
Q905
C916 COLOR BURST LEVEL
X901
TP902
L905,C910
L906,C912
Q902 CHARACTER LEVEL
Q901 BLANKING LEVEL
PROGRAM
SYNC OSC
TIMING GENERATOR
VIDEO PROCESS
Q904
Q906
SYNC SELECT
ON SCREEN CONTROL
C905 DOT CLOCK
OSC
DECORDER
SRL CLOCK
RESET
SRL-DATA
CHIP SELECT
L902
C906
TP901
CF951
HORIZ C/D
V SYNC SEP
AFC
H VCO 321H
H SYNC SEP
Q903
From 03 MAIN (MECHACON)
R236
D209
Q211
D208
To 43 PRE/REC CN2
CN201
PB FM
SYNC
R208 SP REC COLOR
R215 EP REC COLOR
Q201
Q202
D205
REC FM & COL MIX
Q203
TP205
REC FM/COLOR
Q204
PB COLOR
TP206
To 03 MAIN (SERVO)
VS2
VIDEO PB FM
VS1
fsc
CN1
JP201
A
B
C
D
E
G
H
I
J
K
1
2
3
4
5
6
7

3.10 AUDIO & AUDIO UNIT BLOCK DIAGRAM

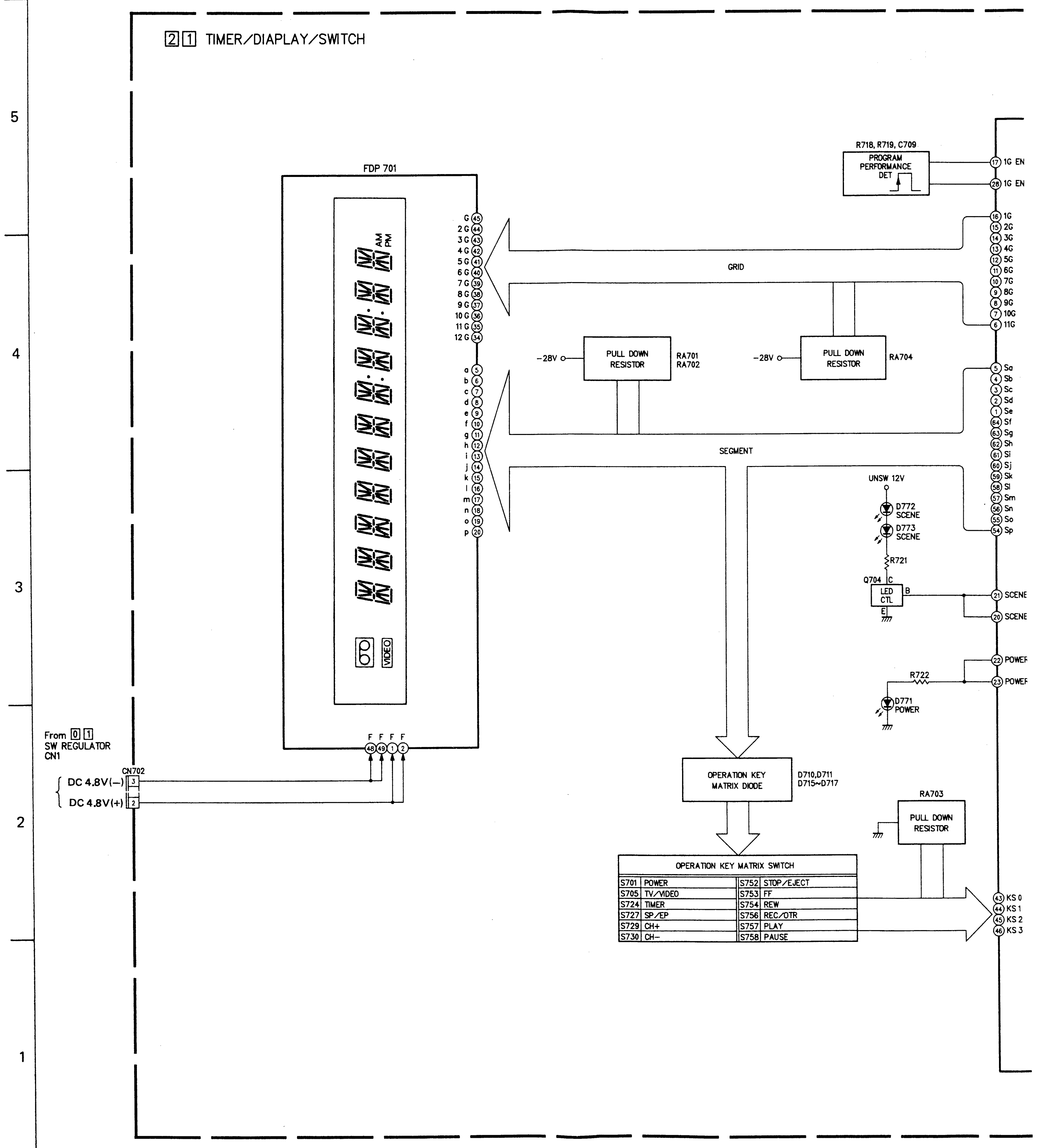


03 AUDIO (MAIN)
09 AUDIO UNIT
12 A/C HEAD
IC1
IC2
IC301
AUDIO IN (L)
AUDIO IN (R)
JA3
TP372
TP371
From 03 MAIN (DEMODURATOR)
SUB (R CH)
MAIN (L CH)
From 03 MAIN (MECHACON)
EE
A MUTE
D304
D302
To 03 MAIN (SERVO)
FMA FF
To 03 MAIN (VIDEO)
JP302
CN2
JP301
CN1
CN301
CN302
NC
SWD 5V
R71
C33
R62
R63
Q5
D1
R59
INPUT SWITCH TNR/AUX
EVR
ALC DET
PB/REC SW CTL
MUTE
LPF
WEIT-ING
28KHz LPF
DET
CCA
ATT
EMP
AMP
EMPH
HOLD 1
HOLD 2
HOLD P. MMV
HOLD PULSE
D. O DET
SW NOISE TANG COMP
AUDIO LIN
PLC
BUF
FM LPF
VCO
FM LIN
P. D
CARR DET
FM DET
ENV
BPF 1
BPF 2
RF MIX
H PHONE LEV CTL
OUTPUT SWITCH
OUTPUT SW CTL
VOLTAGE FOLLOWER
MOR
REC
PB
REC : ON
R16~R18 C34~C36
R19,R20 C38,C39
C37
R21
C42
C43~C45 R23
C61
R44 DEV (R)
R41 FO (R)
R6~R8 C4~C6
R9,R10 C8,C9
C7
R11
C12
C13~C15 R13
C46
R24 DEV (L)
R27 FO (L)
SWD 9V
R61
TP304
TP303
CN303
From 0 MAIN (MECHAC
HiFi/NOR/
From 0 MAIN (SERVO
AUDIO PB
Q4
Q3
Q2
Q1
ES
MUTE
FE
REC/PB
AE
TP334 ERASE
T301,Q301 BIAS OSC
D301
Q302
R320 BIAS ADJ
Q304
D303
MUTE
AGC FILTER
C309 R315 R314 R313
AGC
LINE AMP
REC EQ
L310,R327 C320
EQ
R302 C302
PB EQ
R307,R306 R309,C306
REC CTL
Q303
REC START
TP331
TP332
A B C D E F G H I J K
1 2 3 4 5 6 7



4 3 PRE/REC
A FF
SWD 5V
Vcc
SWD 5V
From 0 3 MAIN (MECHACON)
D2
B
E
C
ES
Q1
REC
REC/PB CTL
C3, R4
DAMP ADJ
CN203
AUDIO
CH 1
HiFi/NOR/MIX
MA6
C1 R1
REC AGC FILTER
IC1
REC : ON
SWD 5V
Q2
ES
D2
REC
C12
REC AGC LEVEL
AGC DET
AGC VR
SP
D1
304
CN303
CN1
REC
BUF
HiFi
REC STRT
REC : ON
C18
VCA CTL
303
REC : ON
R18, R17
C18
REC
PRE
AGC DET
AGC DET
C8, R7
DAMP ADJ
AUDIO
CH 2
From 0 3 MAIN (SERVO)
SA1
AUDIO PB FM
ROTARY TRANS
4 1 UPPER DRUM
RF AUDIO
TO RF CONVERTER
TP373
FIX LINE OUT (R)
TP374
FIX LINE OUT (L)
JA4
VARIABLE LINE OUT (R)
VARIABLE LINE OUT (L)
JA5

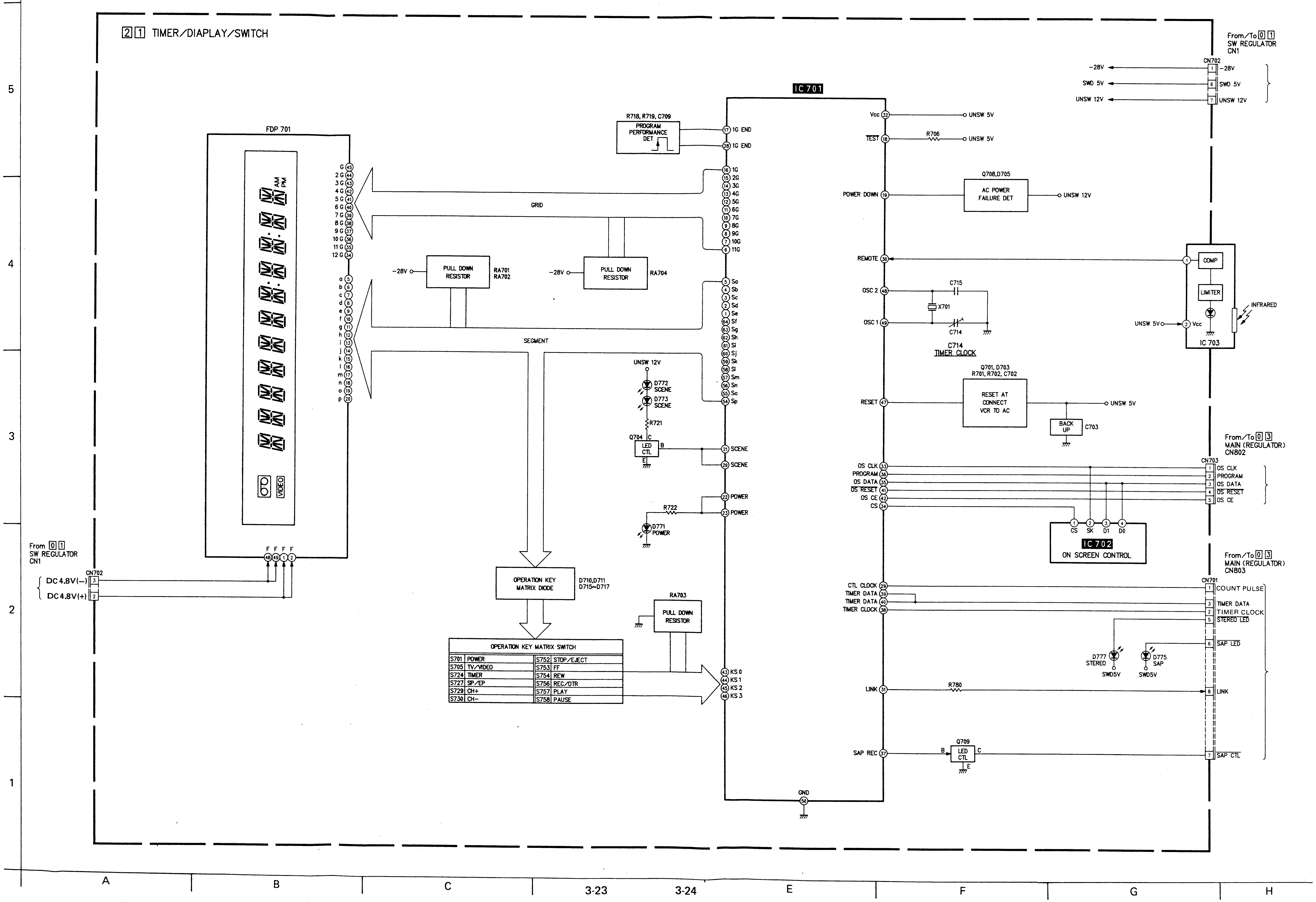
3.11 TIMER/DISPLAY/SW BLOCK DIAGRAM



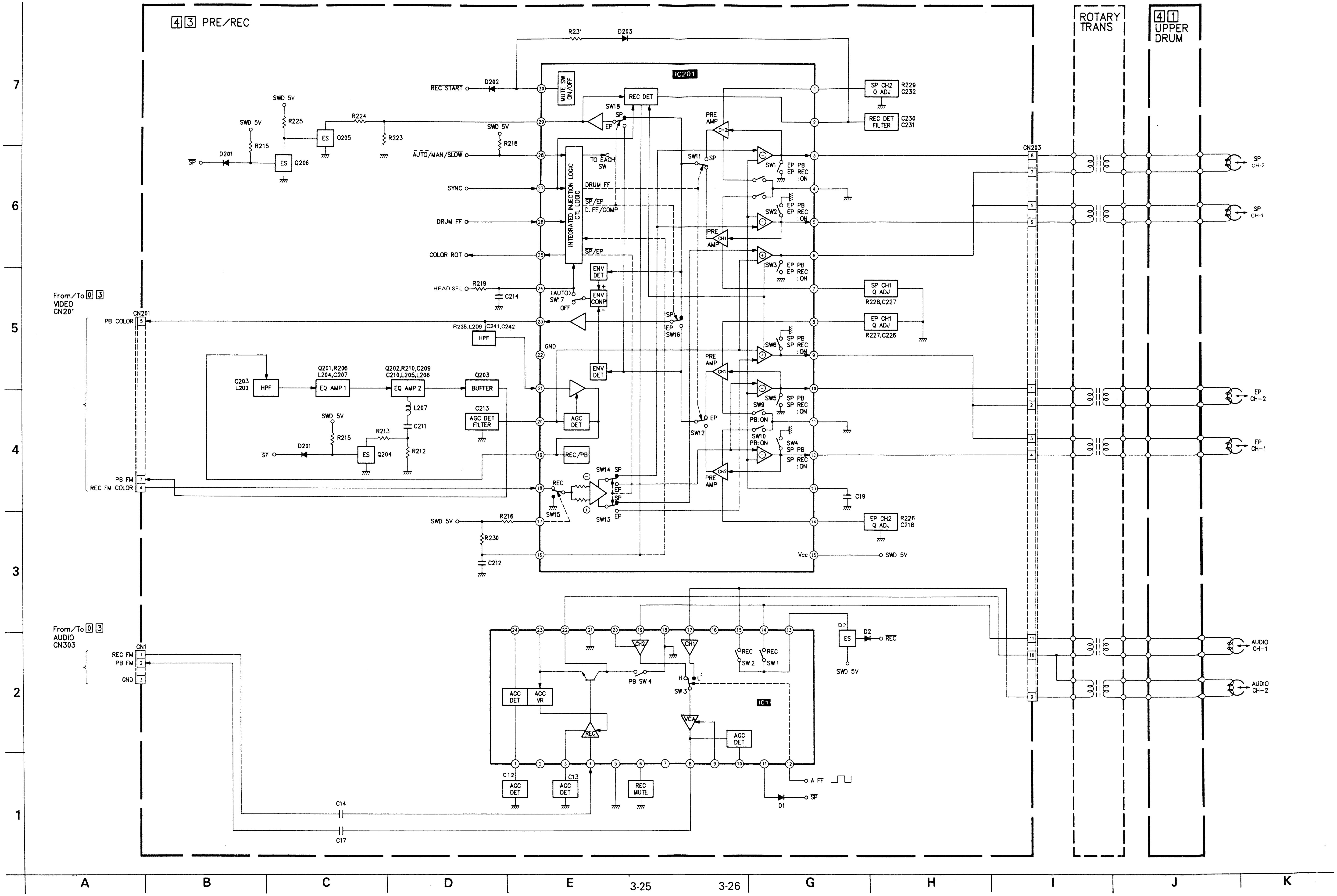
2 1 TIMER/DIAPLAY/SWITCH
FDP 701
AM
PM
VIDEO
G 45
2 G 44
3 G 43
4 G 42
5 G 41
6 G 40
7 G 39
8 G 38
9 G 37
10 G 36
11 G 35
12 G 34
a 5
b 6
c 7
d 8
e 9
f 10
g 11
h 12
i 13
j 14
k 15
l 16
m 17
n 18
o 19
p 20
F F F F
48 49 1 2
GRID
SEGMENT
−28V
PULL DOWN RESISTOR
RA701
RA702
−28V
PULL DOWN RESISTOR
RA704
R718, R719, C709
PROGRAM PERFORMANCE DET
17 1G EN
28 1G EN
16 1G
15 2G
14 3G
13 4G
12 5G
11 6G
10 7G
9 8G
8 9G
7 10G
6 11G
5 Sa
4 Sb
3 Sc
2 Sd
1 Se
64 Sf
63 Sg
62 Sh
61 Si
60 Sj
59 Sk
58 Sl
57 Sm
56 Sn
55 So
54 Sp
UNSW 12V
D772 SCENE
D773 SCENE
R721
Q704
C
LED CTL
B
E
21 SCENE
20 SCENE
22 POWER
23 POWER
R722
D771 POWER
From 0 1
SW REGULATOR
CN1
CN702
DC 4.8V(−) 3
DC 4.8V(+) 2
OPERATION KEY MATRIX DIODE
D710,D711
D715~D717
RA703
PULL DOWN RESISTOR
43 KS 0
44 KS 1
45 KS 2
46 KS 3

OPERATION KEY MATRIX SWITCH			
S701	POWER	S752	STOP/EJECT
S705	TV/VIDEO	S753	FF
S724	TIMER	S754	REW
S727	SP/EP	S756	REC/OTR
S729	CH+	S757	PLAY
S730	CH−	S758	PAUSE

3.11 TIMER/DISPLAY/SW BLOCK DIAGRAM

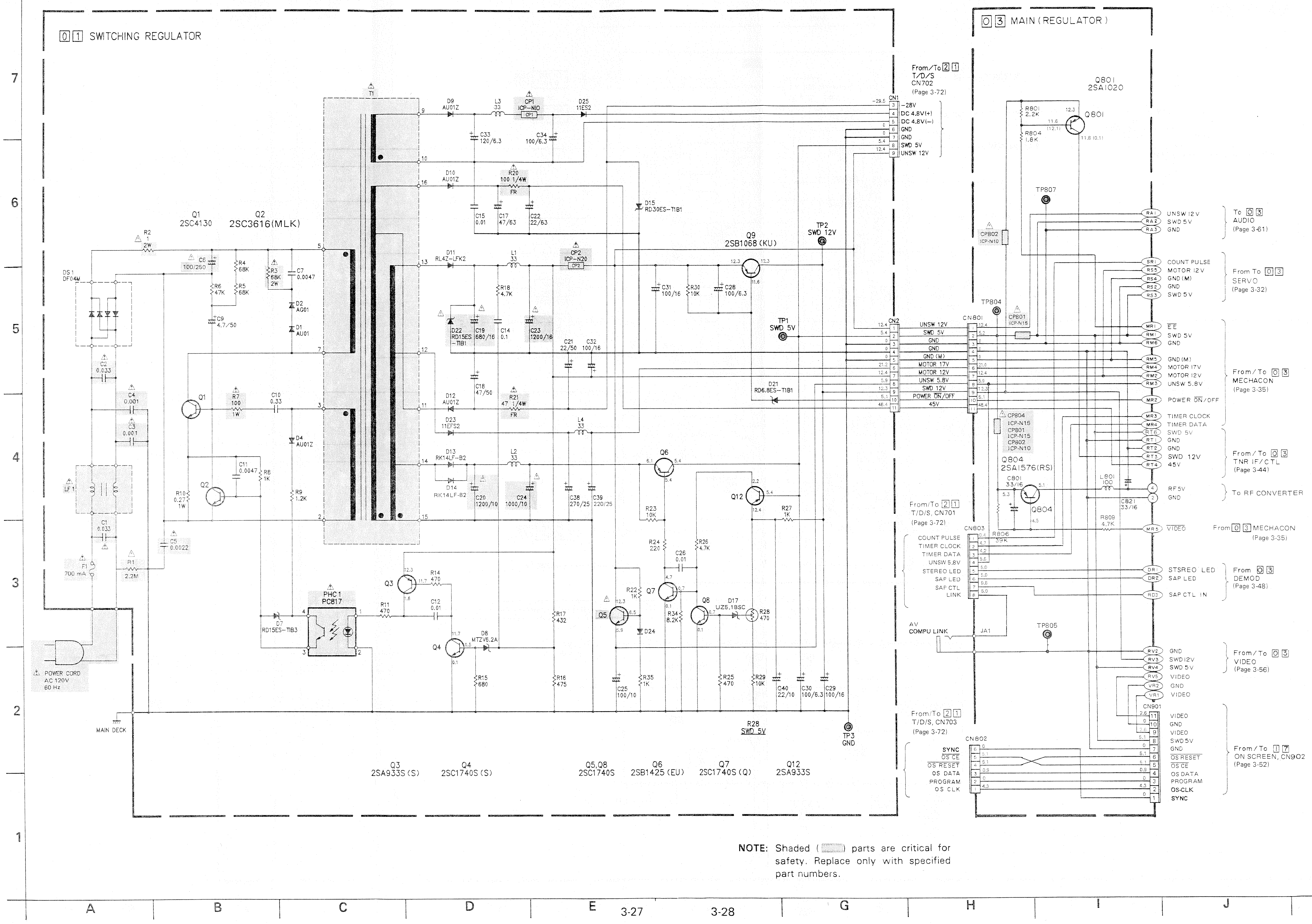

2 1 TIMER/DIAPLAY/SWITCH
FDP 701
AM
PM
VIDEO
G 45
2 G 44
3 G 43
4 G 42
5 G 41
6 G 40
7 G 39
8 G 38
9 G 37
10 G 36
11 G 35
12 G 34
a 5
b 6
c 7
d 8
e 9
f 10
g 11
h 12
i 13
j 14
k 15
l 16
m 17
n 18
o 19
p 20
F F F F
48 49 1 2
GRID
SEGMENT
-28V
PULL DOWN RESISTOR
RA701
RA702
-28V
PULL DOWN RESISTOR
RA704
IC 701
R718, R719, C709
PROGRAM PERFORMANCE DET
17 1G END
28 1G END
16 1G
15 2G
14 3G
13 4G
12 5G
11 6G
10 7G
9 8G
8 9G
7 10G
6 11G
5 Sa
4 Sb
3 Sc
2 Sd
1 Se
64 Sf
63 Sg
62 Sh
61 Si
60 Sj
59 Sk
58 Sl
57 Sm
56 Sn
55 So
54 Sp
UNSW 12V
D772 SCENE
D773 SCENE
R721
Q704
C
B
E
LED CTL
21 SCENE
20 SCENE
22 POWER
23 POWER
R722
D771 POWER
OPERATION KEY MATRIX DIODE
D710,D711
D715~D717
RA703
PULL DOWN RESISTOR
OPERATION KEY MATRIX SWITCH
S701 POWER
S705 TV/VIDEO
S724 TIMER
S727 SP/EP
S729 CH+
S730 CH−
S752 STOP/EJECT
S753 FF
S754 REW
S756 REC/OTR
S757 PLAY
S758 PAUSE
43 KS 0
44 KS 1
45 KS 2
46 KS 3
GND 50
Vcc 32
UNSW 5V
TEST 18
R706
UNSW 5V
POWER DOWN 19
Q708,D705
AC POWER FAILURE DET
UNSW 12V
REMOTE 30
OSC 2 48
C715
X701
OSC 1 49
C714
C714 TIMER CLOCK
Q701, D703
R701, R702, C702
RESET 47
RESET AT CONNECT VCR TO AC
UNSW 5V
BACK UP
C703
OS CLK 33
PROGRAM 36
OS DATA 35
OS RESET 41
OS CE 42
CS 34
1 CS
2 SK
3 D1
4 D0
IC 702
ON SCREEN CONTROL
CTL CLOCK 29
TIMER DATA 39
TIMER DATA 40
TIMER CLOCK 38
D777 STEREO
SWD5V
D775 SAP
SWD5V
LINK 31
R780
SAP REC 37
Q709
B
LED CTL
C
E
From/To 0 1
SW REGULATOR
CN1
CN702
-28V
SWD 5V
UNSW 12V
1 -28V
6 SWD 5V
7 UNSW 12V
COMP
LIMITER
INFRARED
UNSW 5V
1
2 Vcc
IC 703
From/To 0 3
MAIN (REGULATOR)
CN802
CN703
1 OS CLK
2 PROGRAM
3 OS DATA
4 OS RESET
5 OS CE
From/To 0 3
MAIN (REGULATOR)
CN803
CN701
1 COUNT PULSE
3 TIMER DATA
2 TIMER CLOCK
5 STEREO LED
6 SAP LED
8 LINK
7 SAP CTL
From 0 1
SW REGULATOR
CN1
CN702
DC 4.8V(−) 3
DC 4.8V(+) 2
6
5
4
3
2
1
A
B
C
E
F
G
H

3.12 PRE/REC BLOCK DIAGRAM



4 3 PRE/REC
ROTARY TRANS
4 1 UPPER DRUM
IC201
IC1
R231
D203
D202
REC START
MUTE SW ON/OFF
REC DET
SW18
SP
EP
SWD 5V
R225
R224
R223
ES
Q205
Q206
R215
D201
SP
R218
AUTO/MAN/SLOW
TO EACH SW
INTEGRATED INJECTION LOGIC CTL LOGIC
SYNC
DRUM FF
SP/EP
D. FF/COMP
COLOR ROT
SP/EP
ENV DET
ENV COMP
HEAD SEL
R219
C214
(AUTO)
SW17
OFF
From/To 0 3 VIDEO CN201
CN201
PB COLOR
R235,L209
C241,C242
HPF
SW16
GND
C203 L203
HPF
Q201,R206 L204,C207
EQ AMP 1
Q202,R210,C209 C210,L205,L206
EQ AMP 2
Q203
BUFFER
C213
AGC DET FILTER
L207
C211
R212
R213
R215
Q204
D201
AGC DET
REC/PB
PB FM
REC FM COLOR
REC
SW15
SW14
SW13
R216
R230
C212
SWD 5V
PRE AMP
CH2
CH1
SW11
SW12
SW1
SW2
SW3
SW4
SW5
SW6
SW9
SW10
PB:ON
EP PB
EP REC :ON
SP PB
SP REC :ON
SP CH2 Q ADJ
R229 C232
REC DET FILTER
R230 C231
SP CH1 Q ADJ
R228,C227
EP CH1 Q ADJ
R227,C226
EP CH2 Q ADJ
R226 C218
C19
Vcc
SWD 5V
CN203
SP CH-2
SP CH-1
EP CH-2
EP CH-1
AUDIO CH-1
AUDIO CH-2
From/To 0 3 AUDIO CN303
CN1
REC FM
PB FM
GND
AGC DET
AGC VR
REC
PB SW4
H
L
SW3
VCA
REC
SW2
SW1
Q2
ES
D2
REC
SWD 5V
AGC DET
C12
C13
REC MUTE
A FF
D1
SP
C14
C17
7
6
5
4
3
2
1
A
B
C
D
E
G
H
I
J
K

3.13 SWITCHING REGULATOR AND MAIN (REGULATOR) SCHEMATIC DIAGRAM


0 1 SWITCHING REGULATOR
0 3 MAIN (REGULATOR)
T1
Q1 2SC4130
Q2 2SC3616(MLK)
Q9 2SB1068 (KU)
Q801 2SA1020
Q804 2SA1576(RS)
PHC1 PC817
DS1 DF04M
LF1
F1 700 mA
POWER CORD AC 120V 60 Hz
MAIN DECK
TP1 SWD 5V
TP2 SWD 12V
TP3 GND
TP804
TP805
TP807
CP1 ICP-N10
CP2 ICP-N20
CP801 ICP-N15
CP802 ICP-N10
CP804 ICP-N15
R28 SWD 5V
From/To 2 1 T/D/S CN702 (Page 3-72)
CN1
-28V
DC 4.8V(+)
DC 4.8V(-)
GND
GND
SWD 5V
UNSW 12V
CN2
CN801
UNSW 12V
SWD 5V
GND
GND
GND (M)
MOTOR 17V
MOTOR 12V
UNSW 5.8V
SWD 12V
POWER ON/OFF
45V
UNSW 12V
SWD 5V
GND
To 0 3 AUDIO (Page 3-61)
COUNT PULSE
MOTOR 12V
GND (M)
GND
SWD 5V
From To 0 3 SERVO (Page 3-32)
EE
SWD 5V
GND
GND (M)
MOTOR 17V
MOTOR 12V
UNSW 5.8V
POWER ON/OFF
TIMER CLOCK
TIMER DATA
From/To 0 3 MECHACON (Page 3-35)
SWD 5V
GND
GND
SWD 12V
45V
From/To 0 3 TNR IF/CTL (Page 3-44)
RF5V
GND
To RF CONVERTER
VIDEO
From 0 3 MECHACON (Page 3-35)
STSREO LED
SAP LED
SAP CTL IN
From 0 3 DEMOD (Page 3-48)
GND
SWD12V
SWD 5V
VIDEO
GND
VIDEO
From/To 0 3 VIDEO (Page 3-56)
From/To 2 1 T/D/S, CN701 (Page 3-72)
CN803
COUNT PULSE
TIMER CLOCK
TIMER DATA
UNSW 5.8V
STEREO LED
SAP LED
SAP CTL
LINK
AV COMPU LINK
JA1
From/To 2 1 T/D/S, CN703 (Page 3-72)
CN802
SYNC
OS CE
OS RESET
OS DATA
PROGRAM
OS CLK
CN901
VIDEO
GND
VIDEO
SWD 5V
GND
OS RESET
OS CE
OS DATA
PROGRAM
OS-CLK
SYNC
From/To 1 7 ON SCREEN, CN902 (Page 3-52)
Q3 2SA933S (S)
Q4 2SC1740S (S)
Q5,Q8 2SC1740S
Q6 2SB1425 (EU)
Q7 2SC1740S (Q)
Q12 2SA933S
D15 RD30ES-T1B1
D21 RD6.8ES-T1B1
D17 UZ5.1BSC
D8 MTZV6.2A
D7 RD15ES-T1B3
D22 RD15ES -T1B1
7
6
5
4
3
2
1
A
B
C
D
E
G
H
I
J
K

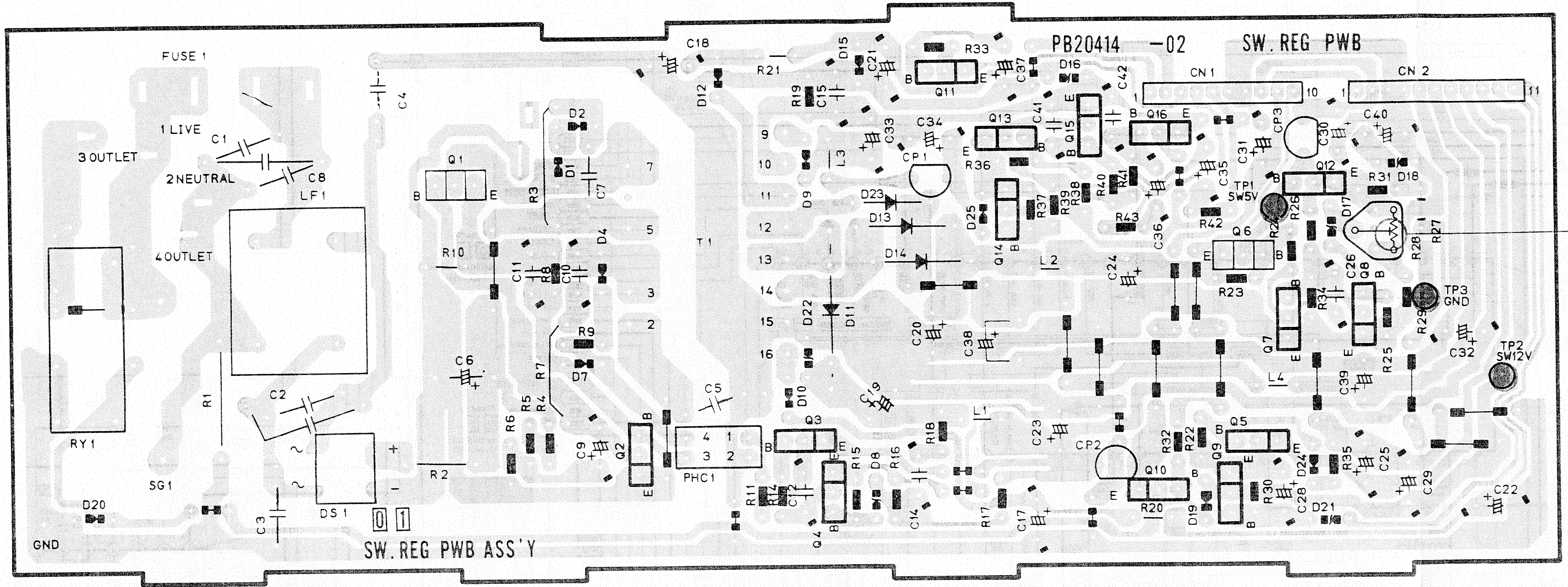
NOTE: Shaded (▨) parts are critical for safety. Replace only with specified part numbers.

6

3.14 SWITCHING REGULATOR CIRCUIT BOARD

5

4


PB20414 -02
SW. REG PWB
SW. REG PWB ASS'Y
01
FUSE 1
1 LIVE
2 NEUTRAL
3 OUTLET
4 OUTLET
C1
C8
LF1
RY1
SG1
D20
GND
C2
C3
DS1
C4
Q1
B
E
R10
R1
R2
R3
D1
D2
C7
D4
C11
R8
C10
R9
D7
C6
R7
R5
R4
R6
C9
Q2
PHC1
C5
T1
C18
R21
D12
R19
C15
D15
C21
R33
Q11
C37
D16
C42
CN 1
CN 2
Q13
C41
Q15
Q16
C34
C33
CP1
R36
L3
D9
D23
D13
D14
D22
D11
D10
C19
Q3
R11
C12
Q4
D8
R15
R16
R18
C14
R17
L1
C17
C23
C20
C38
C24
D25
Q14
R37
R39
R38
R40
R41
R43
C36
L 2
C31
C35
CP3
TP1 SW5V
R42
R24
R26
Q6
R23
Q7
C30
C40
Q12
R31
D18
D17
R28
R27
C26
Q8
R34
TP3 GND
R29
R25
C39
L4
C32
TP2 SW12V
CP2
R32
R22
Q5
Q9
Q10
R20
D19
R30
C28
D24
R35
C25
C29
D21
C22
1
2
3
4
5
7
9
10
11
12
13
14
15
16

R28
SW 5V ADJ

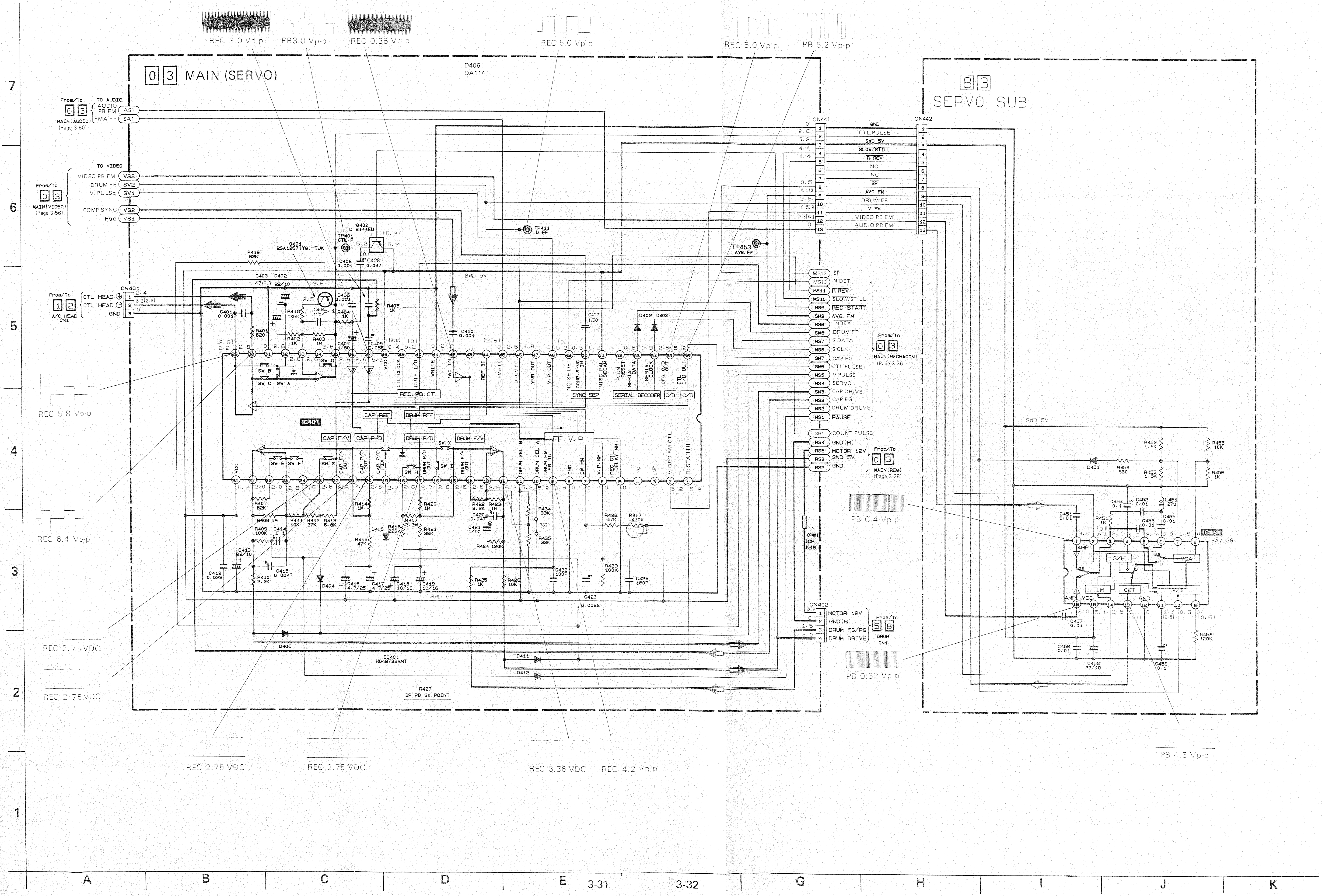
3

2

1

A B C E F G H

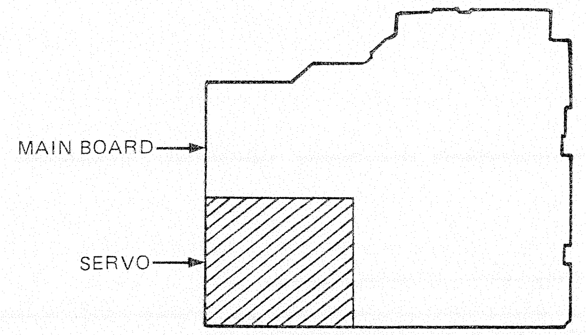
3.15 MAIN (SERVO), SERVO SUB SCHEMATIC DIAGRAMS

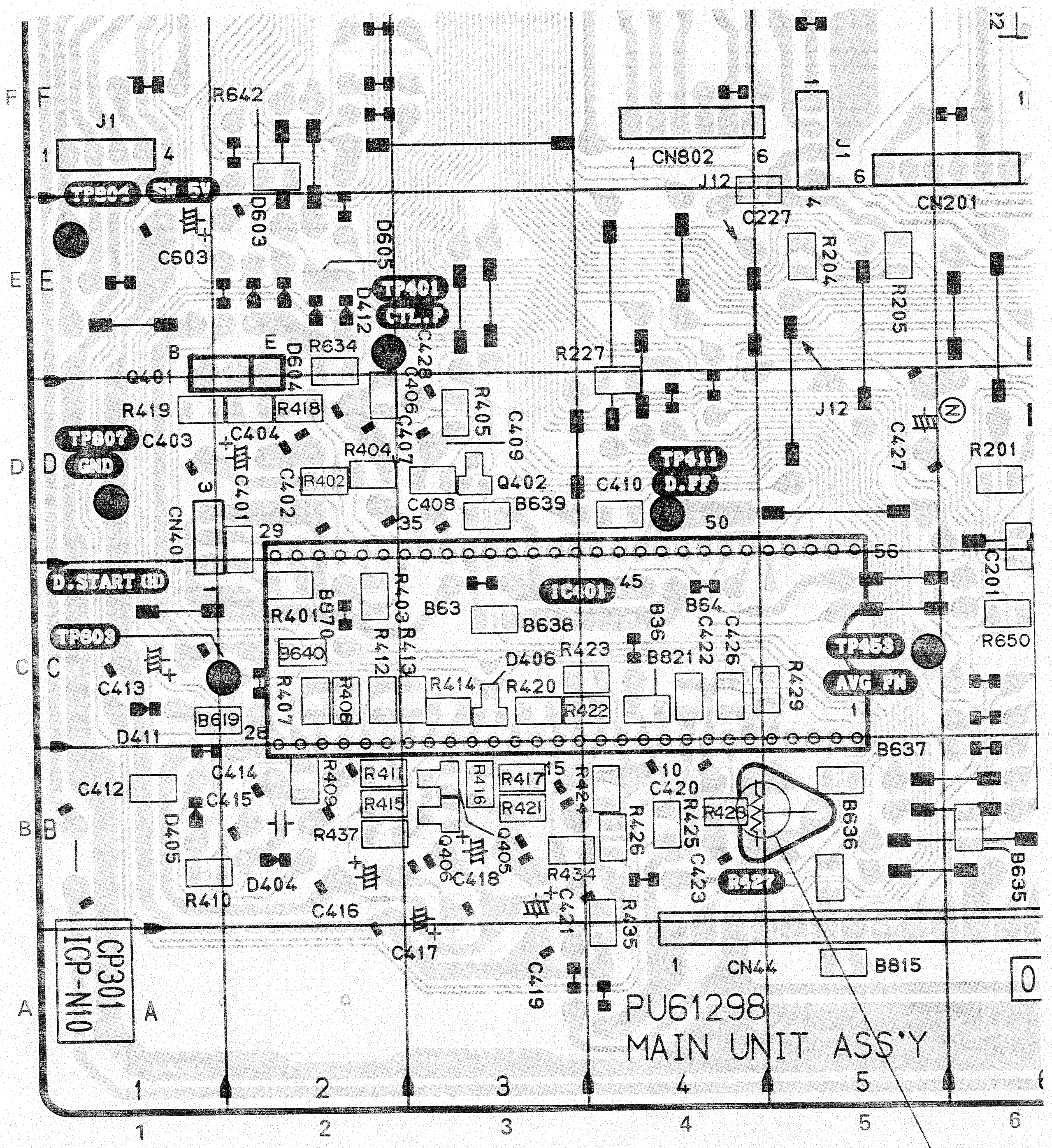


03 MAIN (SERVO)
83 SERVO SUB
REC 3.0 Vp-p
PB3.0 Vp-p
REC 0.36 Vp-p
REC 5.0 Vp-p
REC 5.0 Vp-p
PB 5.2 Vp-p
REC 5.8 Vp-p
REC 6.4 Vp-p
REC 2.75 VDC
REC 2.75 VDC
REC 2.75 VDC
REC 2.75 VDC
REC 3.36 VDC
REC 4.2 Vp-p
PB 0.4 Vp-p
PB 0.32 Vp-p
PB 4.5 Vp-p
D406
DA114
From/To
TO AUDIC
AUDIO PB FM
FMA FF
MAIN(AUDIO)
(Page 3-60)
TO VIDEO
VIDEO PB FM
DRUM FF
V. PULSE
COMP SYNC
Fsc
MAIN(VIDEO)
(Page 3-56)
CTL HEAD ⊕
CTL HEAD ⊖
GND
A/C HEAD
CN401
IC401
HD49733ANT
Q401
2SA1267(YG)-TJK
Q402
DTA144EU
TP401
CTL.P
TP411
D.FF
TP453
AVG. FM
SWD 5V
CN441
CN442
GND
CTL PULSE
SWD 5V
SLOW/STILL
R.REV
NC
NC
SP
AVG FM
DRUM FF
V FM
VIDEO PB FM
AUDIO PB FM
SP
N DET
R.REV
SLOW/STILL
REC START
AVG. FM
INDEX
DRUM FF
S DATA
S CLK
CAP FG
CTL PULSE
V PULSE
SERVO
CAP DRIVE
CAP FG
DRUM DRUVE
PAUSE
From/To
03
MAIN(MECHACON)
(Page 3-36)
COUNT PULSE
GND(M)
MOTOR 12V
SWD 5V
GND
MAIN(REG)
(Page 3-28)
CN402
MOTOR 12V
GND(M)
DRUM FG/PG
DRUM DRIVE
58
DRUM CN1
REC.PB.CTL
SYNC SEP
SERIAL DECODER
CAP REF
DRUM REF
CAP F/V
CAP P/D
DRUM P/D
DRUM F/V
FF V.P
R427
SP PB SW POINT
IC451
BA7039
S/H
VCA
TIM
OUT
V/I
AMP
D451
D402
D403
D404
D405
D411
D412
CP401
ICP-N15
A
B
C
D
E
G
H
I
J
K
1
2
3
4
5
6
7

3.16 MAIN (SERVO), SERVO SUB CIRCUIT BOARDS

●MAIN board assembly is located in page 3-41,42


MAIN BOARD
SERVO


F
E
D
C
B
A
1
2
3
4
5
6
J1
R642
TP804
SW 5V
C603
D603
D605
D412
TP401
CTL.P
CN802
J12
C227
R204
R205
CN201
B
E
R634
D604
Q401
R419
R418
Q406
C428
C407
R405
C409
R227
J12
C427
R201
TP807
GND
C403
C404
C401
C402
R402
R404
Q402
B639
C408
TP411
D.FF
C410
CN401
29
35
50
56
C201
D.START (H)
IC401
45
R401
B870
R403
R413
R412
B63
B638
B36
B64
C422
C426
TP803
B640
D406
R423
B821
R429
TP453
AVG FM
R650
C413
R407
R408
R414
R420
R422
D411
B619
28
1
B637
C412
C414
C415
R409
R411
R415
R416
R417
R421
15
R424
10
C420
R425
R426
R428
B636
D405
R437
Q405
C418
R434
C423
R427
B635
R410
D404
C416
C421
R435
C417
C419
CN44
B815
CP301
ICP-N10
PU61298
MAIN UNIT ASS'Y

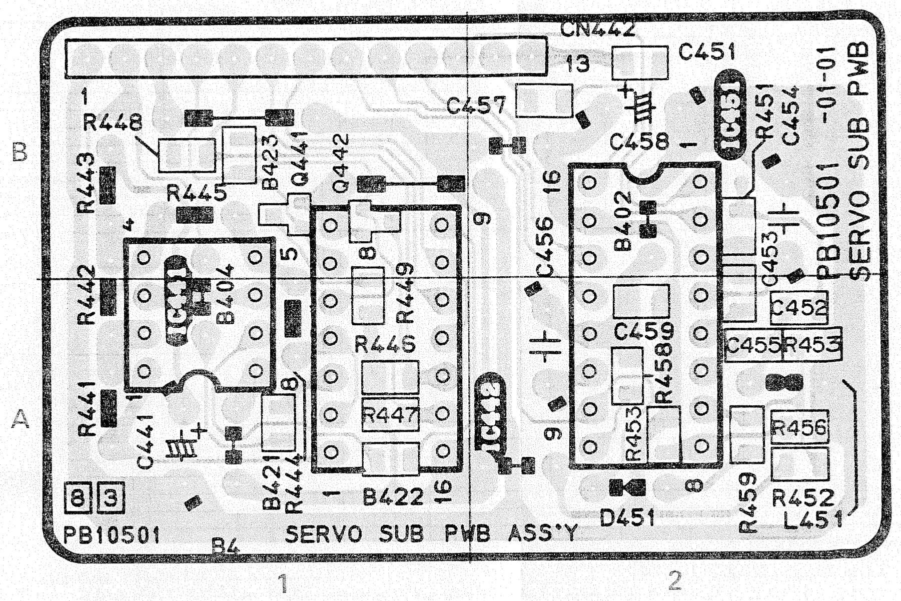
R427
SP PB SW POINT

●Only chip parts

REF No.	LOCATION
RESISTOR	
R451	B-2
R452	A-2
R453	A-2
R455	A-2
R456	A-2
R458	A-2
R459	A-2

REF No.	LOCATION
CAPACITOR	
C451	B-2
C452	A-2
C453	A-2
C455	A-2
C457	B-2
C459	A-2

– SERVO SUB –

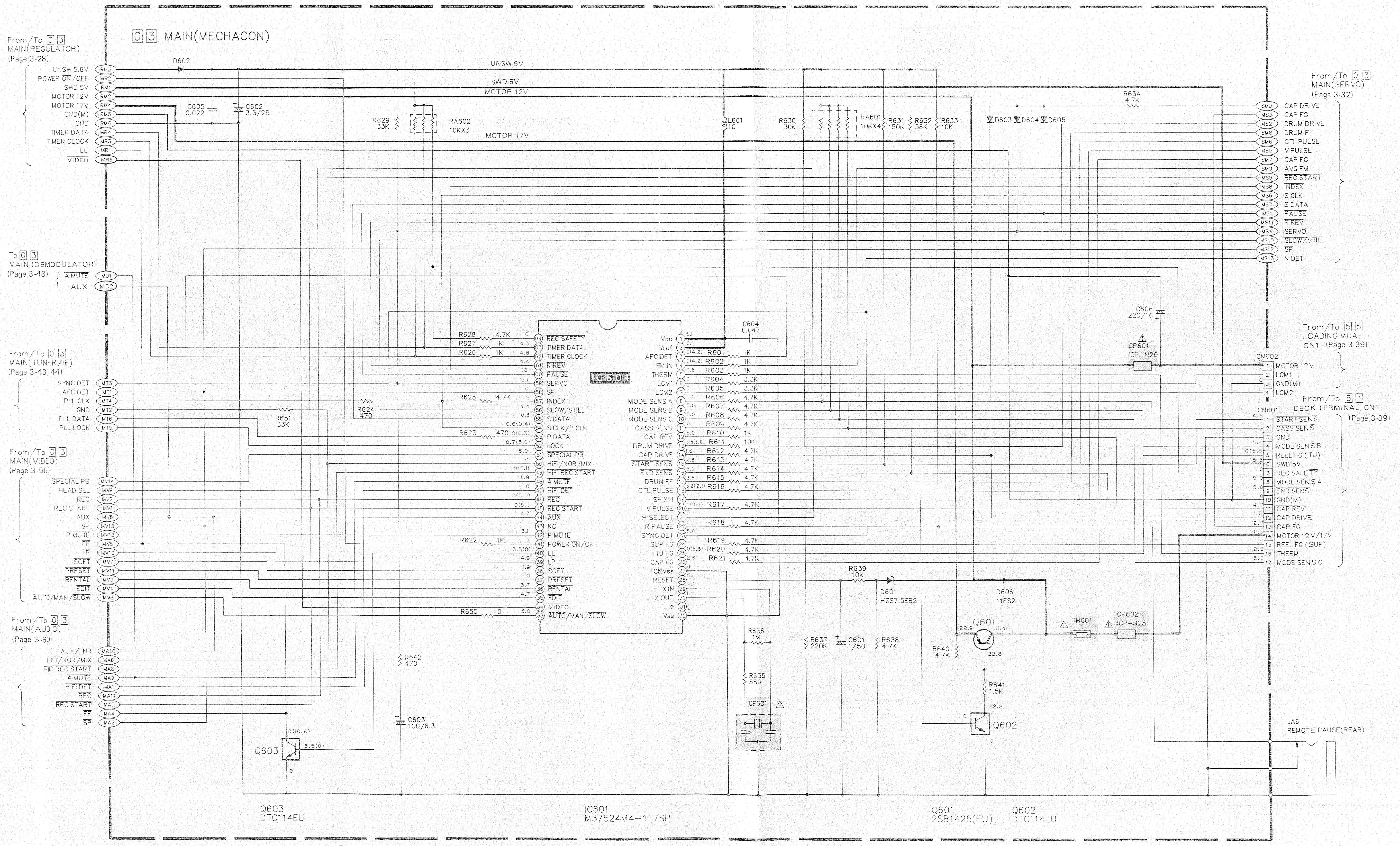

B
A
1
2
CN442
13
C451
C457
1
R448
R443
R445
B423
Q441
Q442
C458
IC451
R451
C454
PB10501 -01-01
SERVO SUB PWB
4
5
6
16
C456
B402
C453
R442
IC441
B404
R449
R446
C459
C452
C455
R453
R458
R441
C441
R447
IC442
9
8
R456
B421
R444
B422
16
D451
R459
R452
L451
8
3
PB10501
B4
SERVO SUB PWB ASS'Y

●Only chip parts

REF No.	LOCATION
TRANSISTOR	
Q402	D-3
DIODE	
D406	C-3
RESISTOR	
R401	C-2
R402	D-2
R403	C-2
R404	D-2
R405	D-3
R407	C-2
R408	C-2
R409	B-2
R410	B-1
R411	B-2
R412	C-2
R413	C-3
R414	C-3
R415	B-2
R416	B-3
R417	B-3
R418	D-2
R419	D-1

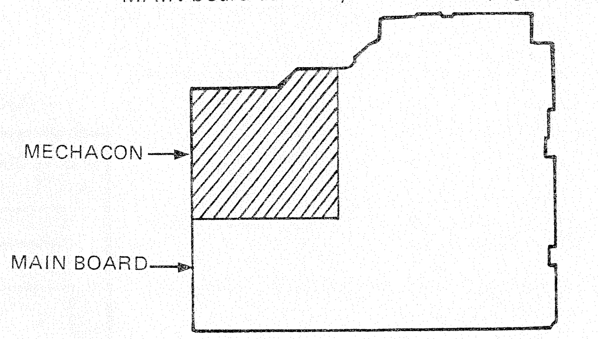
REF No.	LOCATION
RESISTOR	
R420	C-3
R421	B-3
R422	C-4
R423	C-4
R424	B-4
R425	B-4
R426	B-4
R428	B-4
R429	C-5
R434	B-3
R435	B-4
CAPACITOR	
C401	D-2
C404	D-2
C406	D-2
C408	D-3
C410	D-4
C412	B-1
C422	C-4
C426	C-4
ADJUSTMENT	
R427	B-4

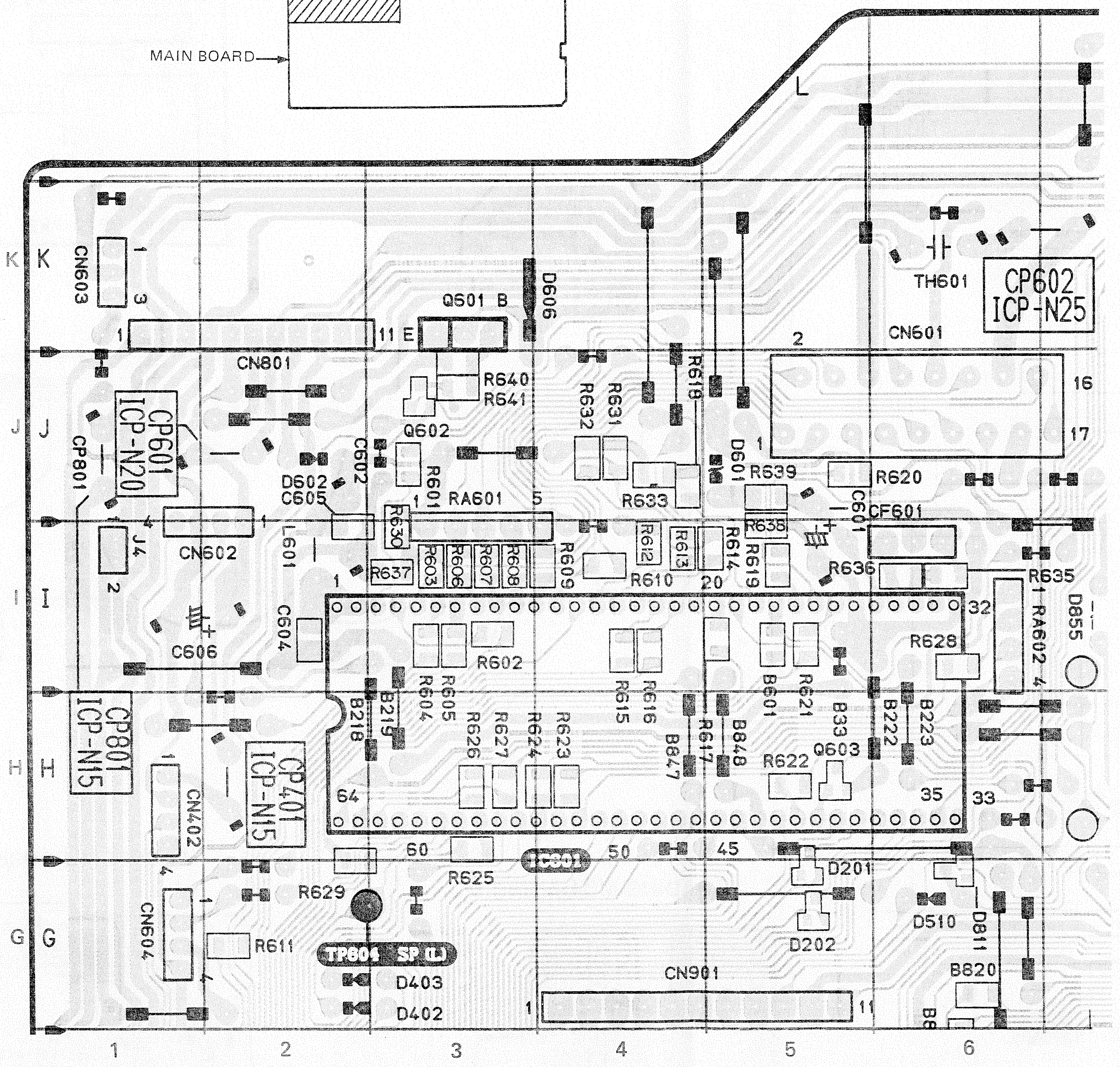
3.17 MAIN (MECHACON) SCHEMATIC DIAGRAM


03 MAIN(MECHACON)
From/To 03 MAIN(REGULATOR) (Page 3-28)
UNSW 5.8V RM3
POWER ON/OFF MR2
SWD 5V RM1
MOTOR 12V RM2
MOTOR 17V RM4
GND(M) RM5
GND RM6
TIMER DATA MR4
TIMER CLOCK MR3
EE MR1
VIDEO MR5
To 03 MAIN (DEMODULATOR) (Page 3-48)
A MUTE MD1
AUX MD2
From/To 03 MAIN(TUNER/IF) (Page 3-43, 44)
SYNC DET MT3
AFC DET MT1
PLL CLK MT4
GND MT2
PLL DATA MT6
PLL LOCK MT5
From/To 03 MAIN(VIDEO) (Page 3-56)
SPECIAL PB MV14
HEAD SEL MV9
REC MV2
REC START MV1
AUX MV6
SP MV13
P MUTE MV12
EE MV5
LP MV10
SOFT MV7
PRESET MV11
RENTAL MV3
EDIT MV4
AUTO/MAN/SLOW MV8
From/To 03 MAIN(AUDIO) (Page 3-60)
AUX/TNR MA10
HIFI/NOR/MIX MA6
HIFI REC START MA8
A MUTE MA9
HIFI DET MA1
REC MA11
REC START MA5
EE MA4
SP MA2
D602
UNSW 5V
SWD 5V
MOTOR 12V
MOTOR 17V
C605 0.022
C602 3.3/25
R629 33K
RA602 10KX3
L601 10
R630 30K
RA601 10KX4
R631 150K
R632 56K
R633 10K
R634 4.7K
D603 D604 D605
From/To 03 MAIN(SERVO) (Page 3-32)
SM3 CAP DRIVE
MS3 CAP FG
MS2 DRUM DRIVE
SM8 DRUM FF
SM6 CTL PULSE
MS5 V PULSE
SM7 CAP FG
SM9 AVG FM
MS9 REC START
MS8 INDEX
MS6 S CLK
MS7 S DATA
MS1 PAUSE
MS11 R REV
MS4 SERVO
MS10 SLOW/STILL
MS12 SP
MS13 N DET
C606 220/16
CP601 ICP-N20
From/To 55 LOADING MDA CN1 (Page 3-39)
CN602
1 MOTOR 12V
2 LCM1
3 GND(M)
4 LCM2
From/To 51 DECK TERMINAL, CN1 (Page 3-39)
CN601
1 START SENS
2 CASS SENS
3 GND
4 MODE SENS B
5 REEL FG (TU)
6 SWD 5V
7 REC SAFETY
8 MODE SENS A
9 END SENS
10 GND(M)
11 CAP REV
12 CAP DRIVE
13 CAP FG
14 MOTOR 12V/17V
15 REEL FG (SUP)
16 THERM
17 MODE SENS C
IC601
R628 4.7K
R627 1K
R626 1K
R625 4.7K
R624 470
R651 33K
R623 470
R622 1K
R650 0
64 REC SAFETY
63 TIMER DATA
62 TIMER CLOCK
61 R REV
60 PAUSE
59 SERVO
58 SP
57 INDEX
56 SLOW/STILL
55 S DATA
54 S CLK/P CLK
53 P DATA
52 LOCK
51 SPECIAL PB
50 HIFI/NOR/MIX
49 HIFI REC START
48 A MUTE
47 HIFI DET
46 REC
45 REC START
44 AUX
43 NC
42 P MUTE
41 POWER ON/OFF
40 EE
39 LP
38 SOFT
37 PRESET
36 RENTAL
35 EDIT
34 VIDEO
33 AUTO/MAN/SLOW
1 Vcc
2 Vref
3 AFC DET
4 FM IN
5 THERM
6 LCM1
7 LCM2
8 MODE SENS A
9 MODE SENS B
10 MODE SENS C
11 CASS SENS
12 CAP REV
13 DRUM DRIVE
14 CAP DRIVE
15 START SENS
16 END SENS
17 DRUM FF
18 CTL PULSE
19 SP X11
20 V PULSE
21 H SELECT
22 R PAUSE
23 SYNC DET
24 SUP FG
25 TU FG
26 CAP FG
27 CNVss
28 RESET
29 X IN
30 X OUT
31 φ
32 Vss
C604 0.047
R601 1K
R602 1K
R603 1K
R604 3.3K
R605 3.3K
R606 4.7K
R607 4.7K
R608 4.7K
R609 4.7K
R610 1K
R611 10K
R612 4.7K
R613 4.7K
R614 4.7K
R615 4.7K
R616 4.7K
R617 4.7K
R618 4.7K
R619 4.7K
R620 4.7K
R621 4.7K
R639 10K
D601 HZS7.5EB2
D606 11ES2
R636 1M
R635 680
CF601
R637 220K
C601 1/50
R638 4.7K
Q601
R640 4.7K
R641 1.5K
Q602
TH601
CP602 ICP-N25
R642 470
C603 100/6.3
Q603
JA6 REMOTE PAUSE(REAR)
Q603 DTC114EU
IC601 M37524M4-117SP
Q601 2SB1425(EU)
Q602 DTC114EU
1 2 3 4 5 6
A B C E F G H

3.18 MAIN (MECHACON) SCHEMATIC DIAGRAM

● MAIN board assembly is located in page 3-41,42

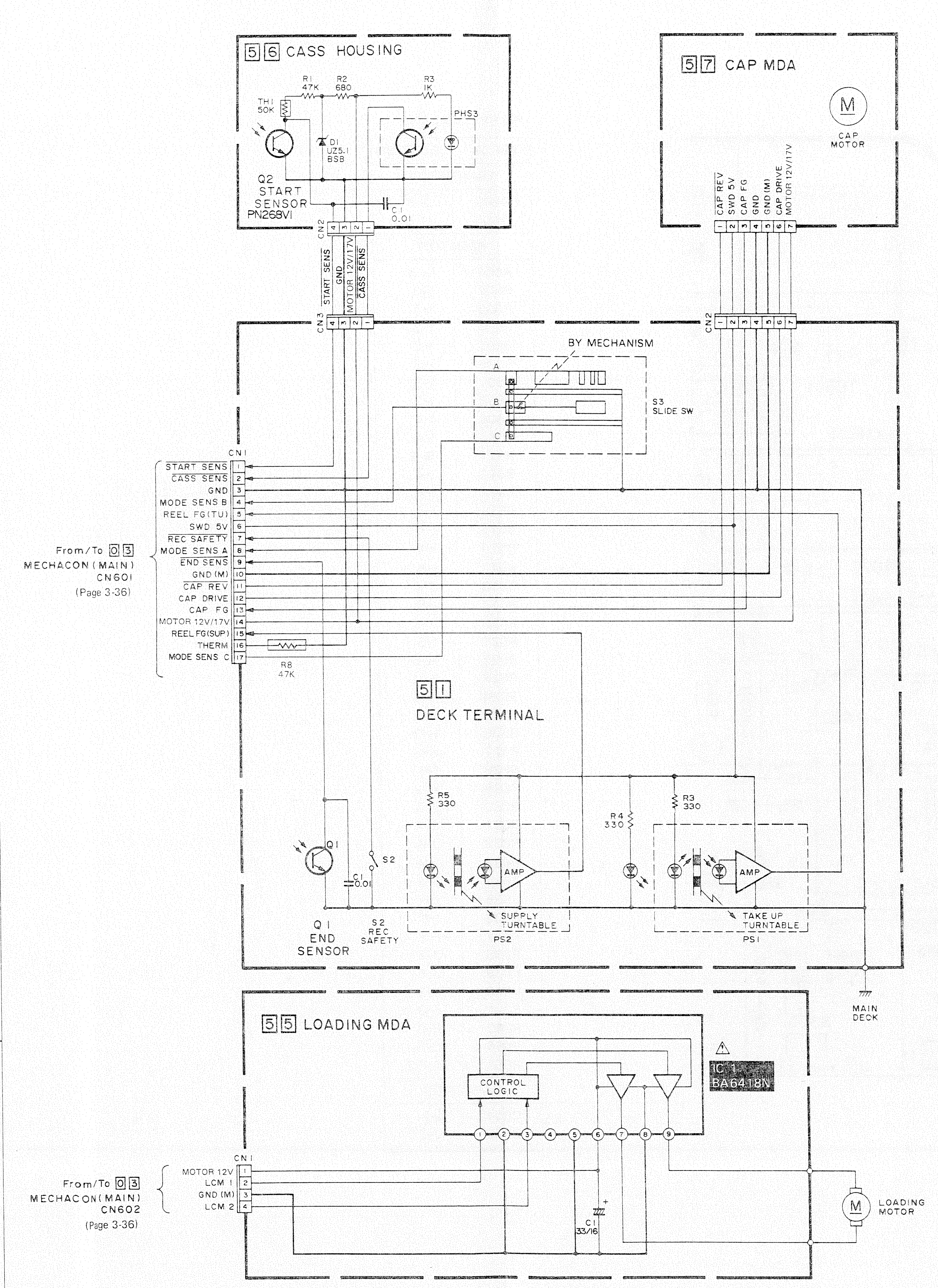

MECHACON
MAIN BOARD


K
J
I
H
G
L
1
2
3
4
5
6
CN603
CN801
Q601 B
E
D606
TH601
CP602
ICP-N25
CN601
R640
R641
R632
R631
R618
CP601
ICP-N20
CP801
Q602
C602
R601
D601
R639
R620
D602
C605
RA601
R633
C601
CF601
CN602
L601
R630
R637
R603
R606
R607
R608
R609
R612
R613
R614
R619
R610
R636
R635
RA602
D855
C604
C606
R602
R628
CP801
ICP-N15
CP401
ICP-N15
CN402
B218
B219
R604
R605
R626
R627
R624
R623
R615
R616
R617
B847
B848
B601
R621
B33
R622
Q603
B222
B223
64
35
33
32
20
60
50
45
R625
IC601
D201
R629
CN604
R611
TP604 SP (L)
D403
D402
D510
D811
D202
CN901
B820
1
11
16
17

● Only chip parts

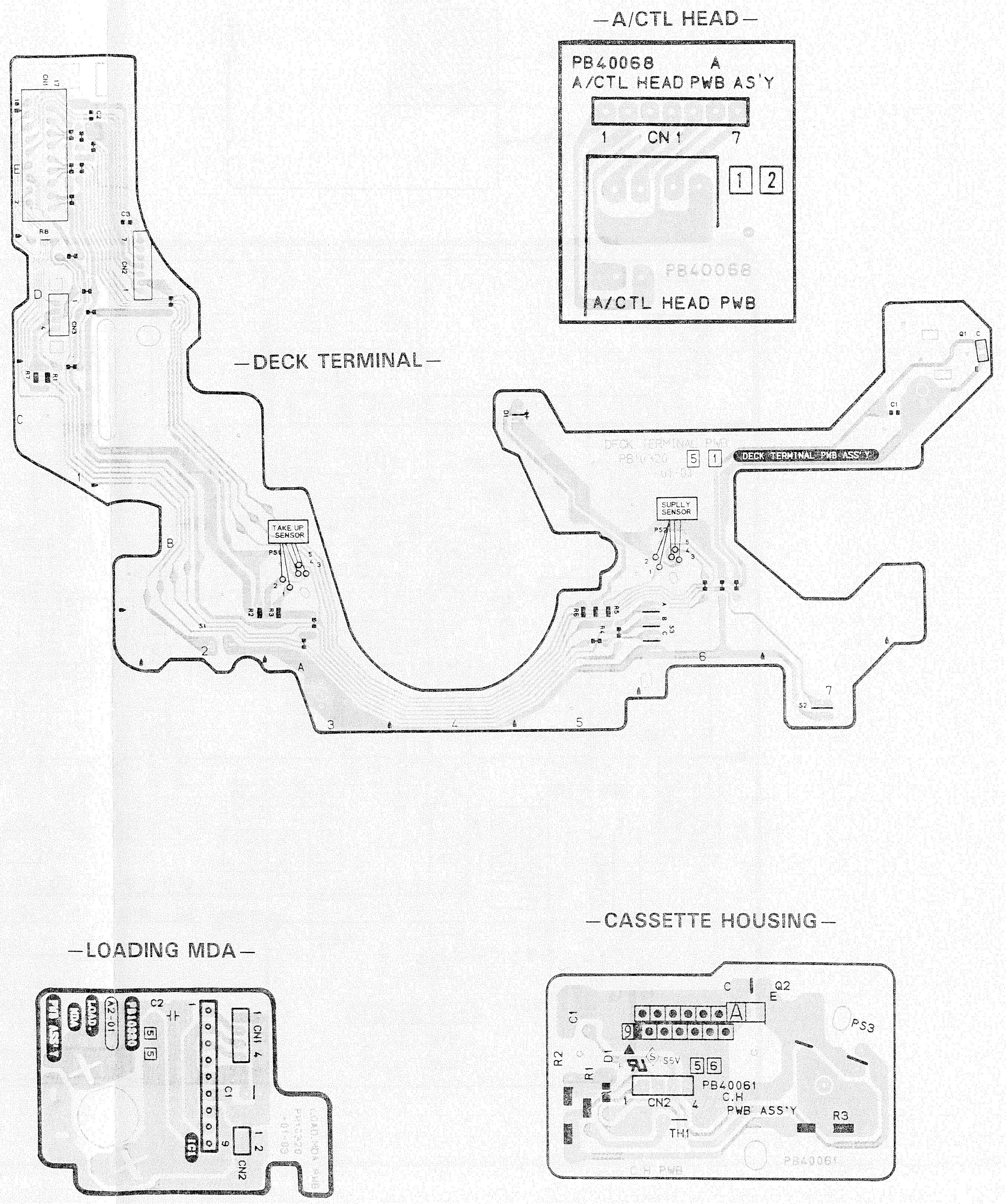
REF No.	LOCATION
TRANSISTOR	
Q602	J–3
Q603	H–5
RESISTOR	
R601	J–3
R602	I–3
R603	I–3
R604	I–3
R605	I–3
R606	I–3
R607	I–3
R608	I–3
R609	I–4
R610	I–4
R611	G–2
R612	I–4
R613	I–4
R614	I–5
R615	I–4
R616	I–4
R617	I–5
R618	J–4
R619	I–5
R620	J–5
R621	I–5
R622	H–5
R623	H–4
R624	H–4
R625	H–3
R626	H–3
R627	H–3
R628	I–6
R629	H–2
R630	J–3
R631	J–4
R632	J–4
R633	J–4
R634	E–2
R635	I–6
R636	I–6
R637	I–3
R638	J–5
R639	J–5
R640	J–3
R641	J–3
R642	F–2
R650	C–6
R651	A–12
CAPACITOR	
C604	I–2
C605	J–2

3.19 DECK TERMINAL, MODE MOTOR, CAPSTAN MDA AND CASS. HOUSING SCHEMATIC DIAGRAMS



56 CASS HOUSING
R1 47K
R2 680
R3 1K
TH1 50K
D1 UZ5.1 BSB
PHS3
Q2 START SENSOR PN268VI
C1 0.01
CN2
START SENS
GND
MOTOR 12V/17V
CASS SENS
CN3
57 CAP MDA
M
CAP MOTOR
CAP REV
SWD 5V
CAP FG
GND
GND(M)
CAP DRIVE
MOTOR 12V/17V
CN2
BY MECHANISM
S3 SLIDE SW
CN1
START SENS
CASS SENS
GND
MODE SENS B
REEL FG(TU)
SWD 5V
REC SAFETY
MODE SENS A
END SENS
GND (M)
CAP REV
CAP DRIVE
CAP FG
MOTOR 12V/17V
REEL FG(SUP)
THERM
MODE SENS C
R8 47K
From/To 03 MECHACON (MAIN) CN601 (Page 3-36)
51 DECK TERMINAL
R5 330
R4 330
R3 330
Q1
C1 0.01
S2
AMP
SUPPLY TURNTABLE
PS2
TAKE UP TURNTABLE
PS1
Q1 END SENSOR
S2 REC SAFETY
MAIN DECK
55 LOADING MDA
CONTROL LOGIC
IC 1 BA6418N
CN1
MOTOR 12V
LCM 1
GND (M)
LCM 2
From/To 03 MECHACON (MAIN) CN602 (Page 3-36)
C1 33/16
M
LOADING MOTOR

3.20 DECK TERMINAL, LOADING MDA, CASS. HOUSING AND A/CTL HEAD CIRCUIT BOARDS


—A/CTL HEAD—

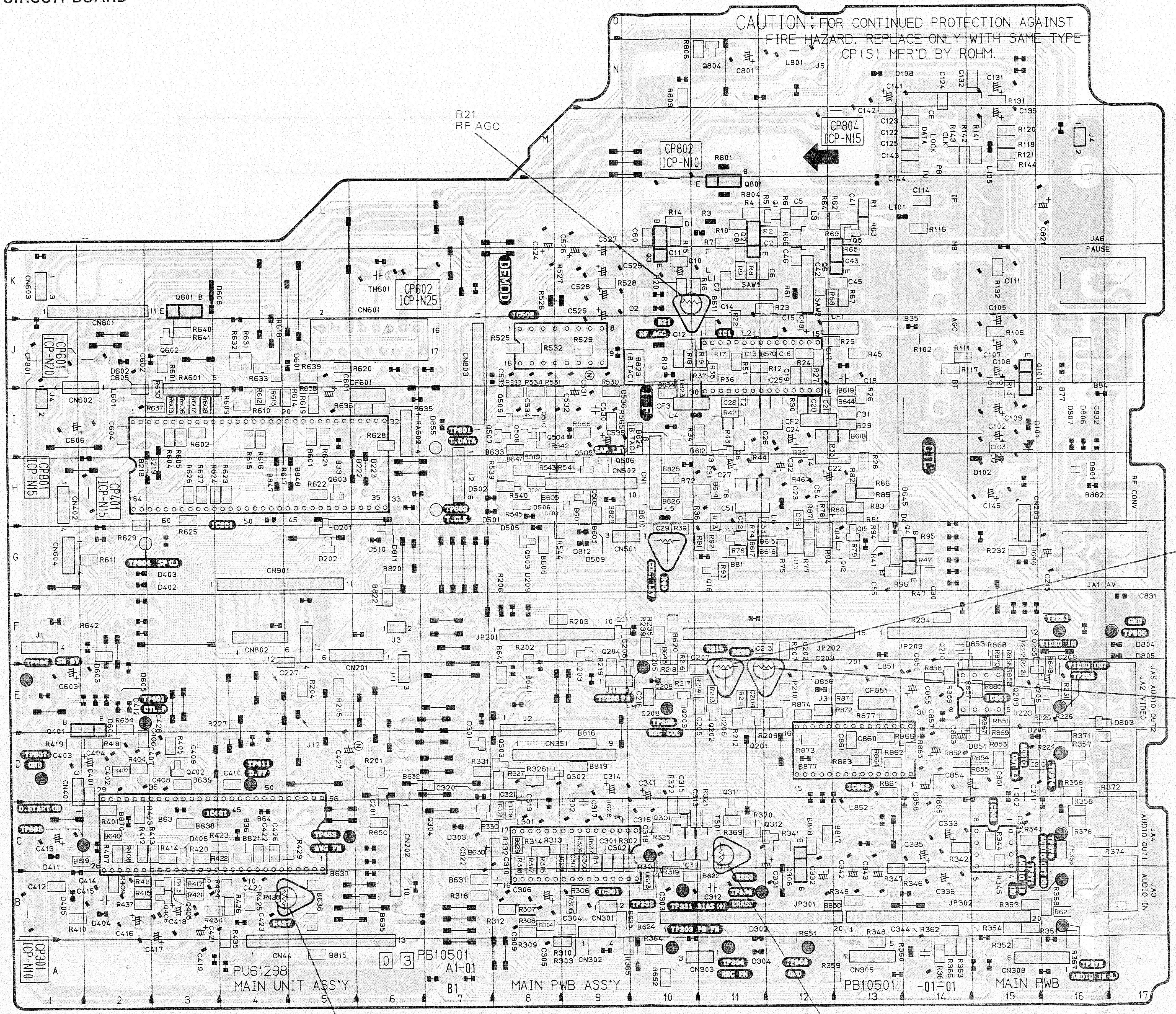
—DECK TERMINAL—

—LOADING MDA—

—CASSETTE HOUSING—

PB40068 A
A/CTL HEAD PWB AS'Y
1 CN1 7
12
PB40068
A/CTL HEAD PWB
DECK TERMINAL PWB ASS'Y
51
TAKE UP SENSOR
SUPPLY SENSOR
PS1
PS2
S1
S2
S3
CN1
CN2
CN3
CN4
55
CN1
CN2
C1
C2
IC1
LOAD MDA PWB
Q2
PS3
A
C1
R1
R2
D1
R3
TH1
56
PB40061 C.H PWB ASS'Y
CN2
C.H PWB
PB40061

3.21 MAIN CIRCUIT BOARD


CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD. REPLACE ONLY WITH SAME TYPE CP(S) MFR'D BY ROHM.
CP804 ICP-N15
CP802 ICP-N10
CP602 ICP-N25
CP601 ICP-N20
CP801 ICP-N15
CP401 ICP-N15
CP301 ICP-N10
DEMOD
PU61298
MAIN UNIT ASS'Y
PB10501
A1-01
B1
MAIN PWB ASS'Y
PB10501 -01-01
MAIN PWB
JA6 PAUSE
RF CONV
JA1 AV
JA5 AUDIO OUT2
JA2 VIDEO
JA4 AUDIO OUT1
JA3 AUDIO IN

R21
RF AGC

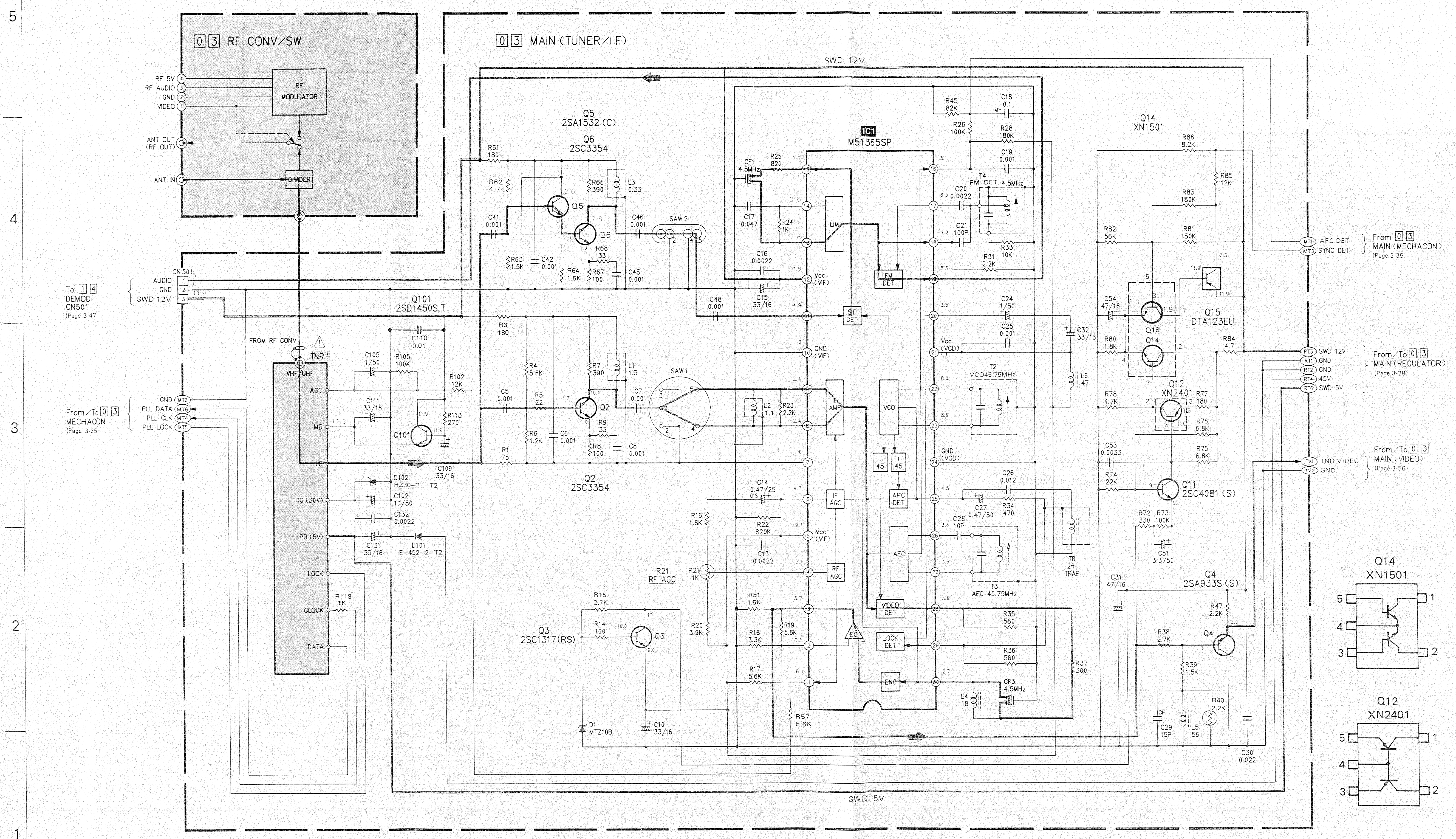
R215
EP REC COLOR

R208
SP REC COLOR

R427
SP PB SW POINT

R320
BIAS ADJ

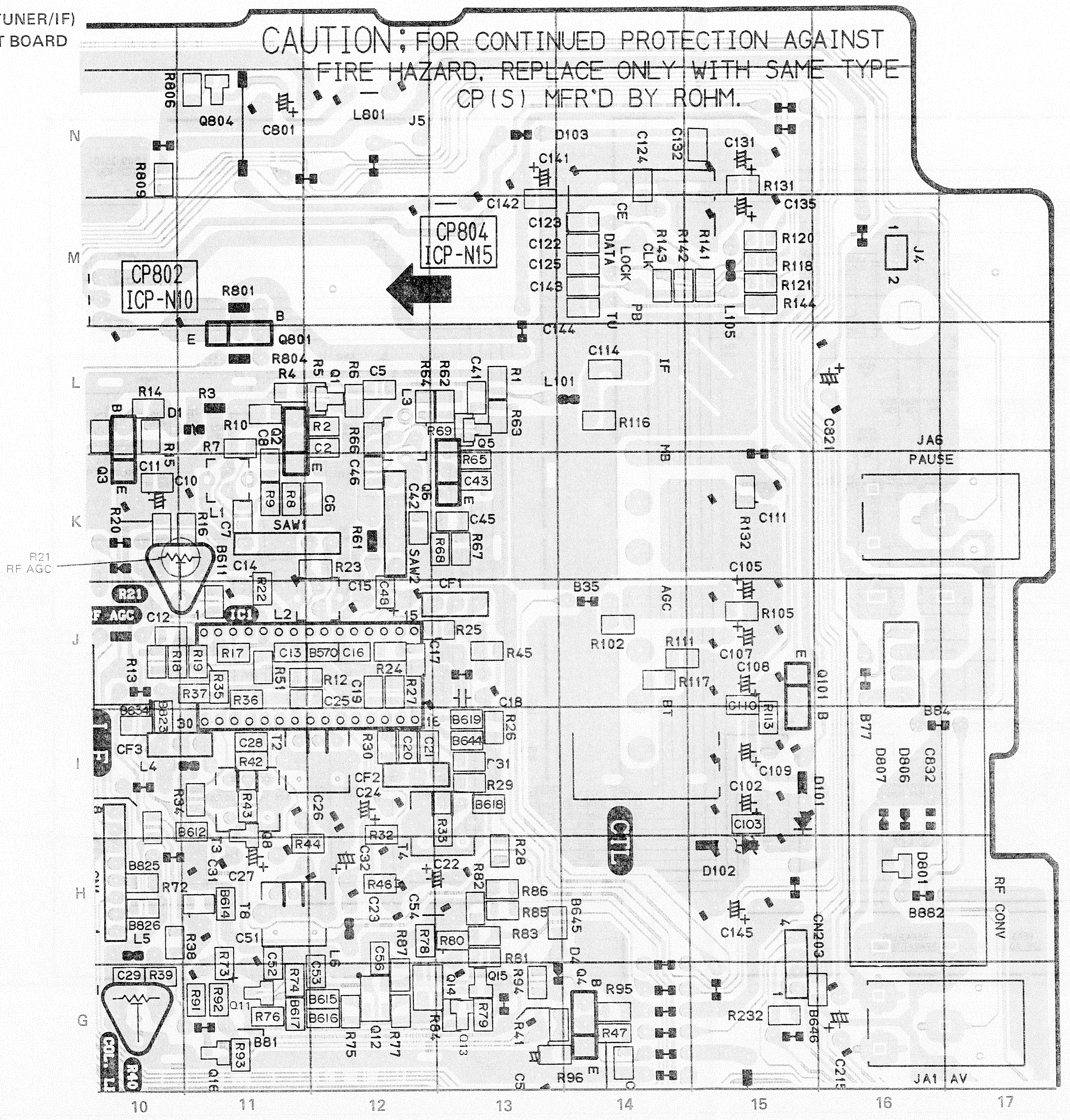
3.22 MAIN (TUNER/IF) SCHEMATIC DIAGRAMS



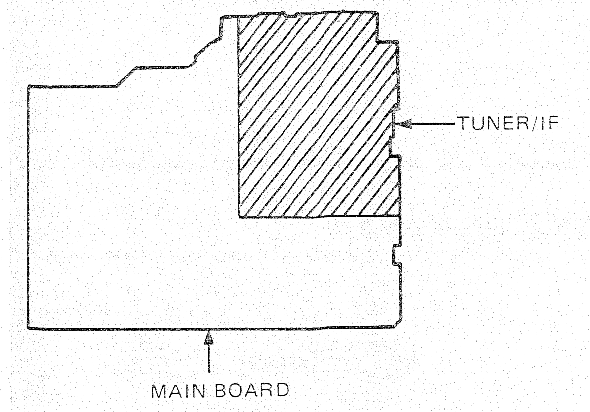
03 RF CONV/SW
RF 5V
RF AUDIO
GND
VIDEO
RF MODULATOR
ANT OUT (RF OUT)
ANT IN
DIVIDER
03 MAIN (TUNER/IF)
SWD 12V
SWD 5V
To 14 DEMOD CN501 (Page 3-47)
CN501
AUDIO
GND
SWD 12V
From/To 03 MECHACON (Page 3-35)
GND
PLL DATA
PLL CLK
PLL LOCK
FROM RF CONV
TNR1
VHF/UHF
AGC
MB
TU (30V)
PB (5V)
LOCK
CLOCK
DATA
Q101 2SD1450S,T
Q5 2SA1532 (C)
Q6 2SC3354
Q2 2SC3354
Q3 2SC1317(RS)
D1 MTZ10B
D101 E-452-2-T2
D102 HZ30-2L-T2
R21 RF AGC
SAW1
SAW2
IC1 M51365SP
LIM
FM DET
SIF DET
IF AMP
VCO
APC DET
AFC
IF AGC
RF AGC
VIDEO DET
LOCK DET
ENC
EQ
Vcc (VIF)
GND (VIF)
Vcc (VCO)
GND (VCO)
T2 VCO 45.75MHz
T3 AFC 45.75MHz
T4 FM DET 4.5MHz
T8 2fH TRAP
CF1 4.5MHz
CF3 4.5MHz
Q14 XN1501
Q15 DTA123EU
Q16
Q12 XN2401
Q11 2SC4081 (S)
Q4 2SA933S (S)
From 03 MAIN (MECHACON) (Page 3-35)
AFC DET
SYNC DET
From/To 03 MAIN (REGULATOR) (Page 3-28)
SWD 12V
GND
GND
45V
SWD 5V
From/To 03 MAIN (VIDEO) (Page 3-56)
TNR VIDEO
GND
Q14 XN1501
Q12 XN2401
1 2 3 4 5

NOTE: Shaded (▨) parts are critical for safety. Replace only with specified part numbers.

3.23 MAIN (TUNER/IF) CIRCUIT BOARD


CAUTION; FOR CONTINUED PROTECTION AGAINST
FIRE HAZARD, REPLACE ONLY WITH SAME TYPE
CP(S) MFR'D BY ROHM.
CP802
ICP-N10
CP804
ICP-N15
R21
RF AGC
JA6
PAUSE
RF CONV
JA1 AV
IF
AGC
MB
BT
CE
DATA
LOCK
CLK
PB
TU
SAW1
SAW2
CF1
CF2
CF3
IC1
IC11
Q801
Q804
R806
R809
R801
R804
C801
L801
J5
J4
D103
D101
D102
C141
C142
C144
C124
C132
C131
R131
C135
C123
C122
C125
C143
R143
R142
R141
R120
R118
R121
R144
L105
C114
L101
R116
C821
C111
R132
C105
R105
B35
R102
R111
C107
C108
R117
C110
R113
Q101
C109
C102
C103
C145
CN203
B646
C215
R232
R95
R47
R96
B77
D807
D806
C832
B84
D801
B882
N
M
L
K
J
I
H
G
10
11
12
13
14
15
16
17

- MAIN board assembly is located in page 3-41,42

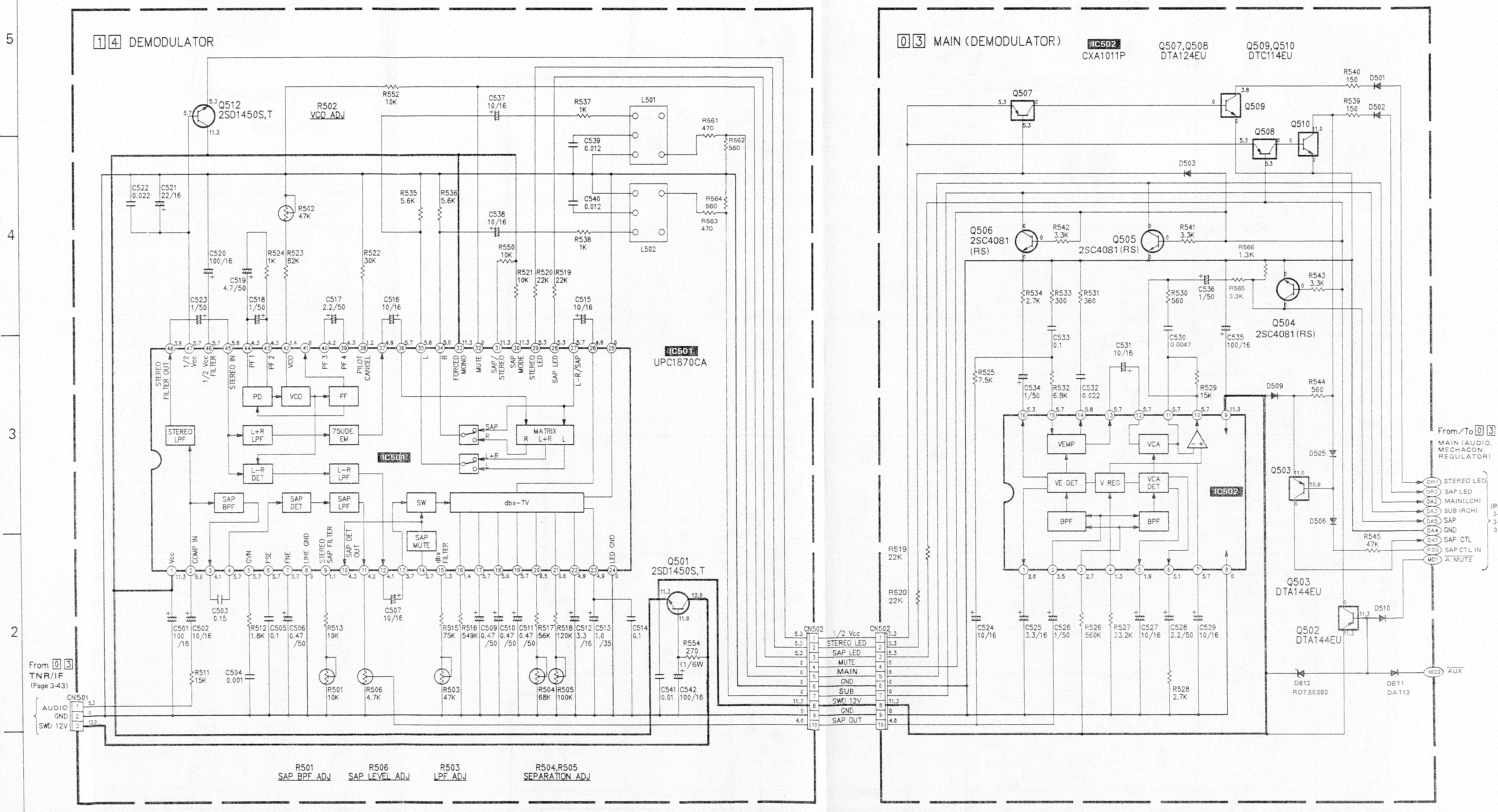

TUNER/IF
MAIN BOARD

- Only chip parts

REF No.	LOCATION
TRANSISTOR	
Q5	L-13
Q11	G-11
Q12	G-12
Q14	G-12
Q15	G-13
RESISTOR	
R1	L-13
R4	L-11
R5	L-12
R6	L-12
R7	L-11
R8	K-11
R9	K-11
R14	L-10
R15	L-10
R16	K-11
R17	J-11
R18	J-11
R19	J-11
R20	K-10
R22	J-11
R23	K-12
R24	J-12
R25	J-13
R26	I-13
R28	H-13
R31	I-13
R33	I-13
R34	I-11
R35	J-11
R36	J-11
R37	J-11
R38	J-11
R39	G-10
R45	J-13
R47	G-14
R51	J-11
R62	L-13
R63	L-13
R64	L-13
R66	L-12
R67	K-13
R68	K-13
R72	H-11

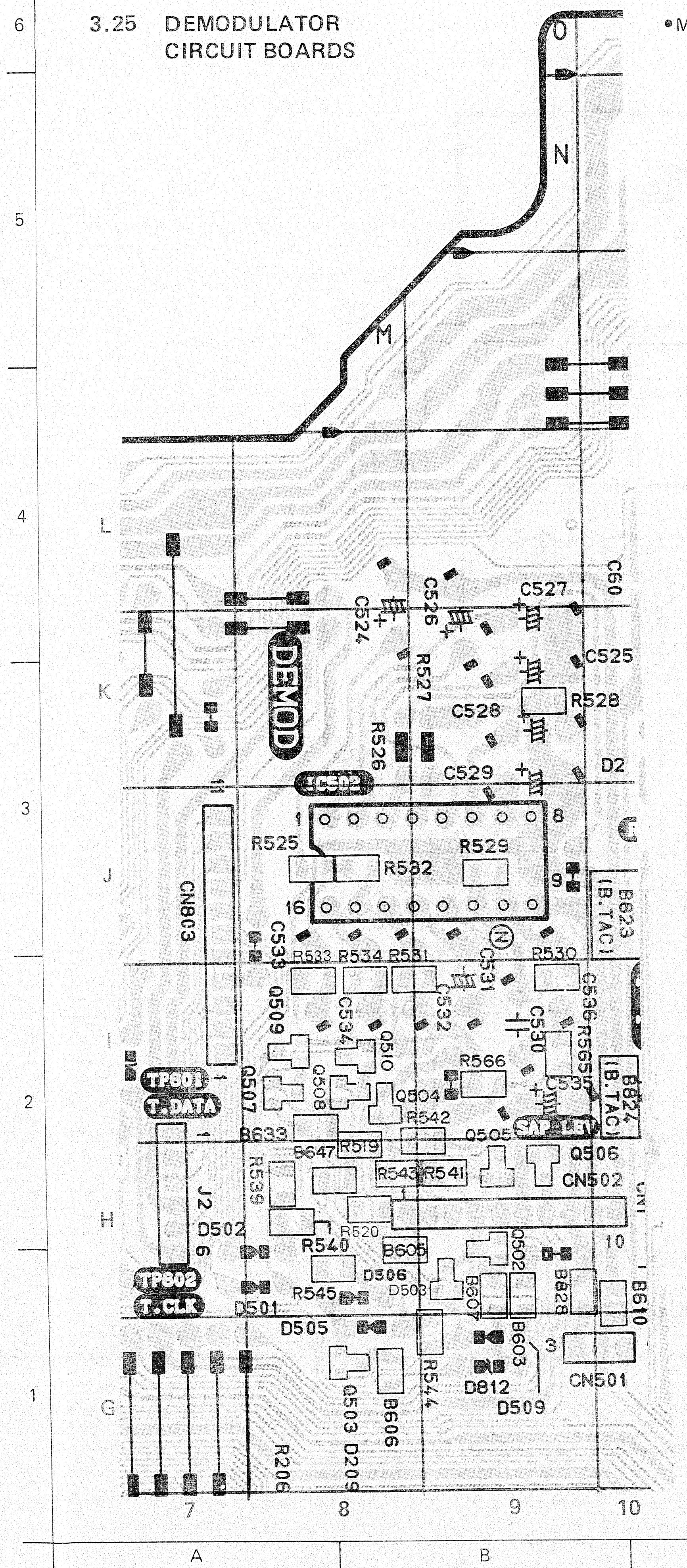
REF No.	LOCATION
RESISTOR	
R73	G-11
R74	G-11
R75	G-12
R76	G-11
R77	G-12
R78	H-12
R80	H-13
R81	H-13
R82	H-13
R83	H-13
R84	G-13
R85	H-13
R86	H-13
R102	J-14
R105	J-15
R113	I-15
R118	M-15
CAPACITOR	
C5	L-12
C6	K-12
C7	K-11
C8	K-11
C13	J-11
C16	J-12
C17	J-12
C19	J-12
C20	I-12
C21	I-12
C25	J-12
C28	11-I
C29	G-10
C30	G-14
C41	L-13
C42	K-12
C45	K-13
C46	K-12
C48	J-12
C53	G-12
C110	J-15
C132	N-15
ADJUSTMENT	
R21	K-11

3.24 DEMODULATOR SCHEMATIC DIAGRAM

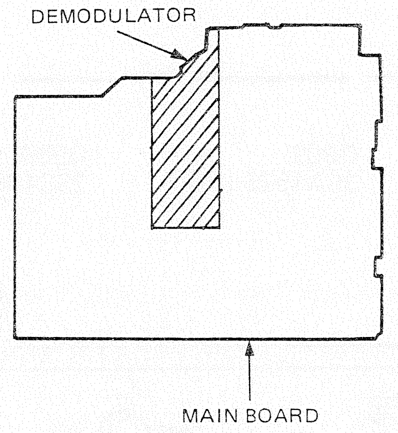

1 4 DEMODULATOR
0 3 MAIN (DEMODULATOR)
IC502 CXA1011P
Q507,Q508 DTA124EU
Q509,Q510 DTC114EU
Q512 2SD1450S,T
R502 VCO ADJ
IC501 UPC1870CA
Q501 2SD1450S,T
Q506 2SC4081 (RS)
Q505 2SC4081 (RS)
Q504 2SC4081 (RS)
Q503 DTA144EU
Q502 DTA144EU
L501
L502
STEREO LPF
PD
VCO
FF
L+R LPF
75UDE EM
L−R DET
L−R LPF
MATRIX
SAP BPF
SAP DET
SAP LPF
SW
dbx−TV
SAP MUTE
VEMP
VCA
VE DET
V REG
VCA DET
BPF
From 0 3 TNR/IF (Page 3-43)
CN501
AUDIO
GND
SWD 12V
CN502
1/2 Vcc
STEREO LED
SAP LED
MUTE
MAIN
GND
SUB
SWD 12V
GND
SAP OUT
From/To 0 3 MAIN (AUDIO, MECHACON, REGULATOR)
STEREO LED
SAP LED
MAIN(LCH)
SUB (RCH)
SAP
GND
SAP CTL
SAP CTL IN
A. MUTE
AUX
(Page 3-26, 3-35, 3-60)
D812 RD7.5ESB2
D811 DA113
R501 SAP BPF ADJ
R506 SAP LEVEL ADJ
R503 LPF ADJ
R504,R505 SEPARATION ADJ
5
4
3
2
1
A
B
C
E
F
G
H

NOTE: Voltage are DC-measured with a digital voltemtetr during stop and tuner mode.

3.25 DEMODULATOR CIRCUIT BOARDS


6
5
4
3
2
1
O
N
M
L
K
J
I
H
G
DEMOD
C524
C526
C527
C60
C525
R527
C528
R528
R526
C529
D2
IC502
R525
R529
R532
CN803
B623 (B.TAC)
C533
R533
R534
R531
C531
R530
Q509
C534
Q510
C532
C530
C536
R565
C535
R566
TP801
T.DATA
Q507
Q508
Q504
R542
Q505
SAP LEV
B624 (B.TAC)
B633
B647
R519
R543
R541
Q506
CN502
R539
J2
D502
R520
R540
B605
Q502
B828
B610
TP802
T.CLK
D501
R545
D506
D503
B607
D505
D812
B603
CN501
Q503
D209
B606
R544
D509
R206
7
8
9
10
A
B
C
D

- MAIN board assembly is located in page 3-41,42


DEMODULATOR
MAIN BOARD

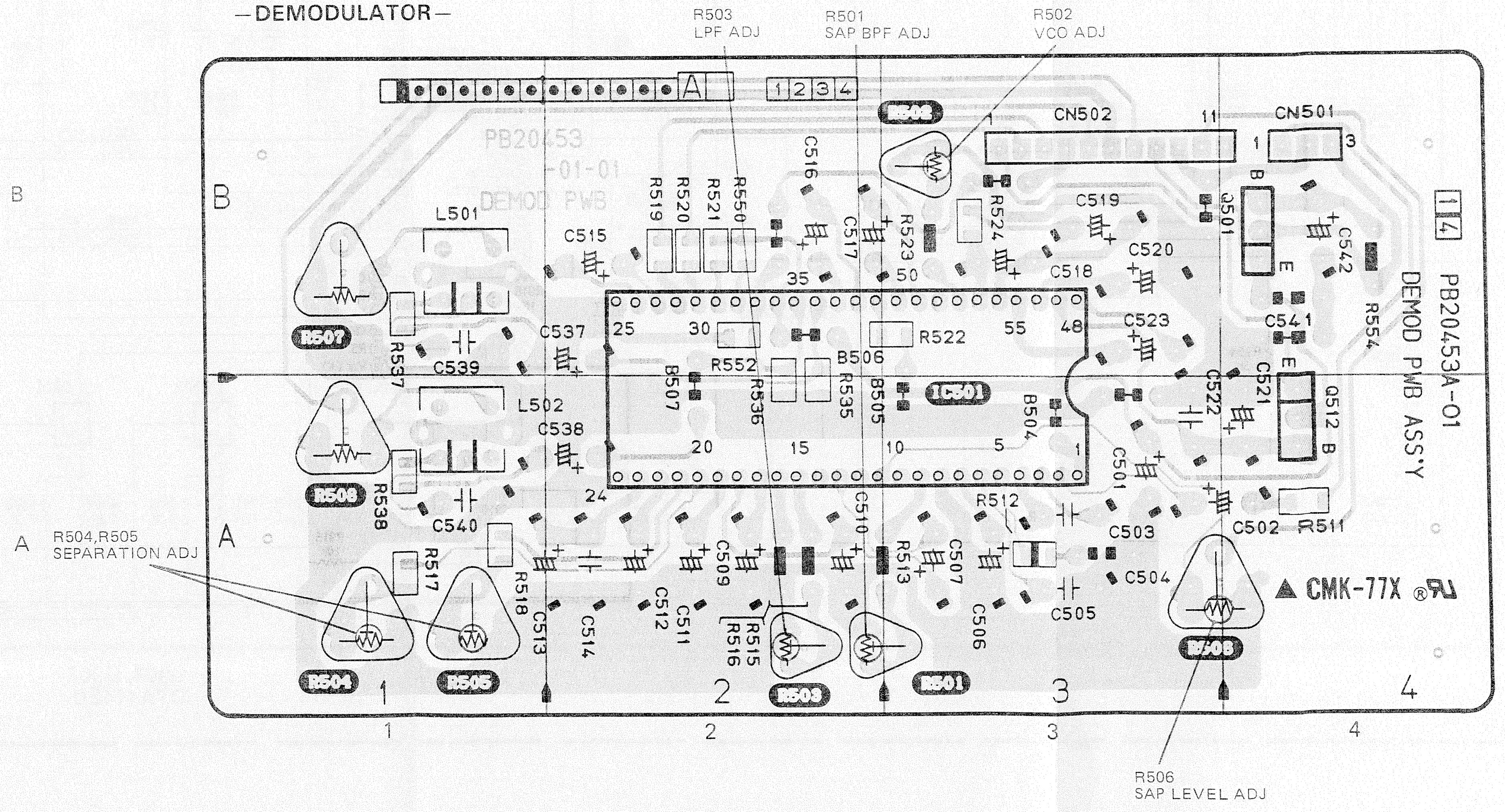
- Only chip parts

REF No.	LOCATION
TRANSISTOR	
Q502	H-9
Q503	G-8
Q504	I-8
Q505	H-9
Q506	H-9
Q507	I-8
Q508	I-8
Q509	I-8
Q510	I-8
DIODE	
D503	H-9

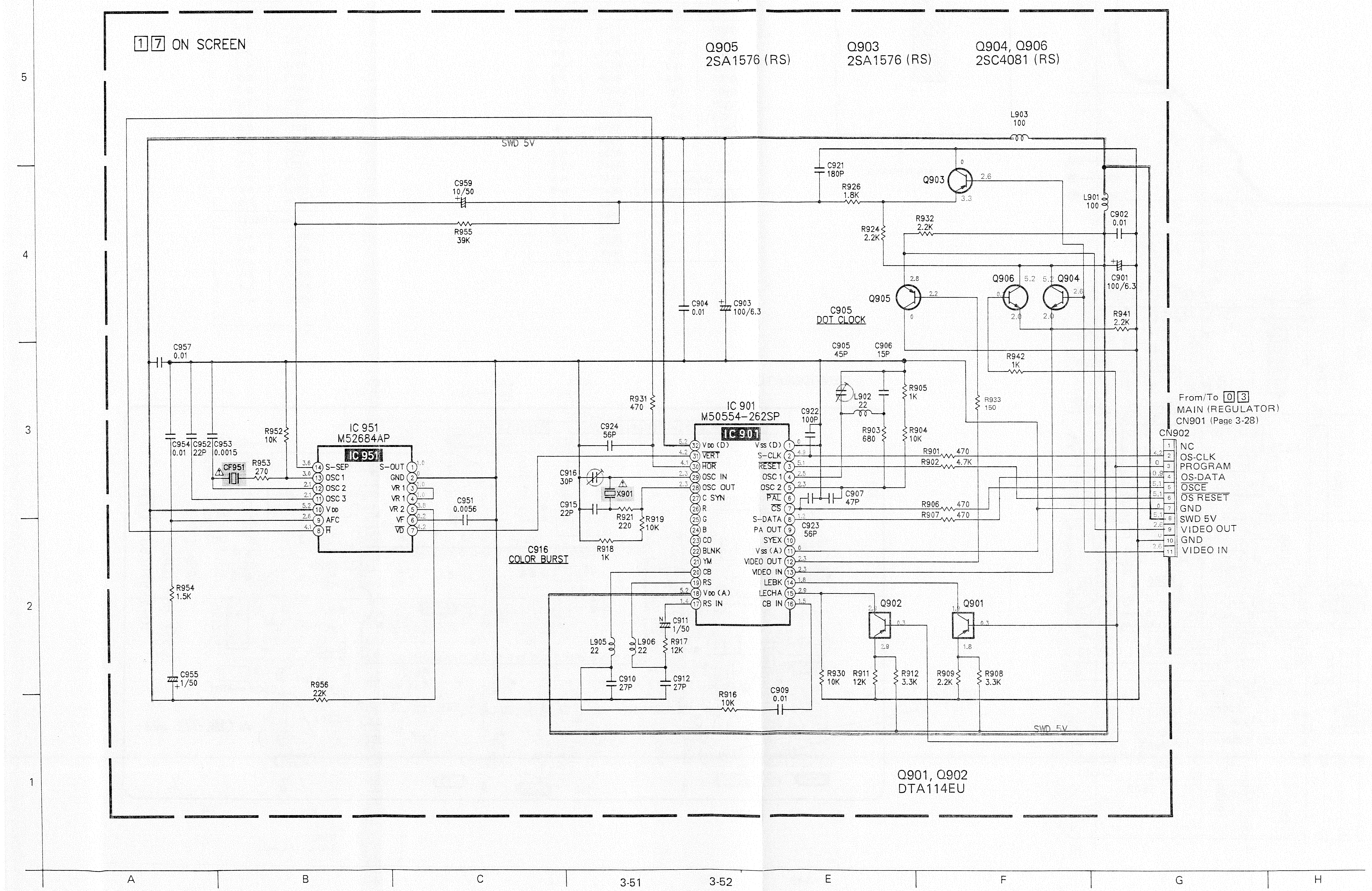
REF No.	LOCATION
RESISTOR	
R519	H-8
R520	H-8
R525	J-8
R528	K-9
R529	J-9
R530	I-9
R531	I-8
R532	J-8
R533	I-8
R534	I-8
R539	H-8
R540	H-8
R541	H-9
R542	H-9
R543	H-8
R544	G-9
R545	H-8
R565	I-9
R566	I-9

REF No.	LOCATION
RESISTOR	
R511	A-4
R512	A-3
R517	A-1
R518	A-1
R519	B-2
R520	B-2
R521	B-2
R522	B-3
R524	B-3
R535	A-2
R536	A-2
R537	B-1
R538	B-1
R550	B-2
R552	B-2
ADJUSTMENT	
R501	A-2
R502	B-3
R503	A-2
R504	A-1
R505	A-1
R506	A-3

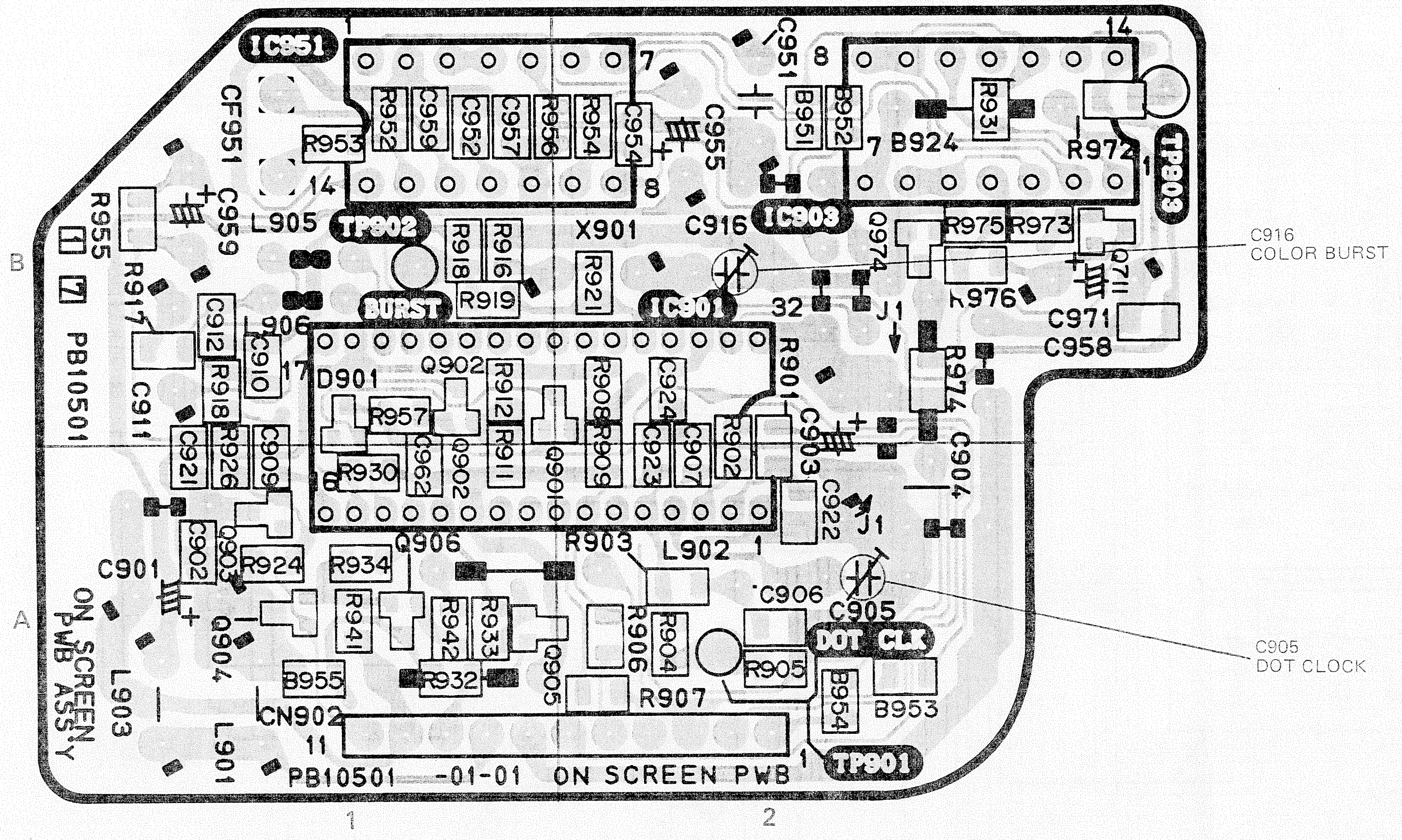
–DEMODULATOR–


R503 LPF ADJ
R501 SAP BPF ADJ
R502 VCO ADJ
R504,R505 SEPARATION ADJ
R506 SAP LEVEL ADJ
B
A
PB20453 -01-01 DEMOD PWB
CN502
CN501
11
1
3
1 2 3 4
L501
L502
C515
C516
C517
R519
R520
R521
R550
R523
R524
C519
C520
C518
C523
C541
C542
Q501
R554
PB20453A-01 DEMOD PWB ASS'Y
14
IC501
R522
R552
B506
B507
R536
R535
B505
B504
R537
C537
C539
C538
C540
R538
R517
R518
C513
C514
C512
C511
C509
C510
R515
R516
R513
C507
R512
C506
C505
C504
C503
C501
C522
C521
C502
R511
Q512
R507
R508
R504
R505
R503
R501
R506
CMK-77X
1
2
3
4
E
F
G
H

3.26 ON SCREEN SCHEMATIC DIAGRAM

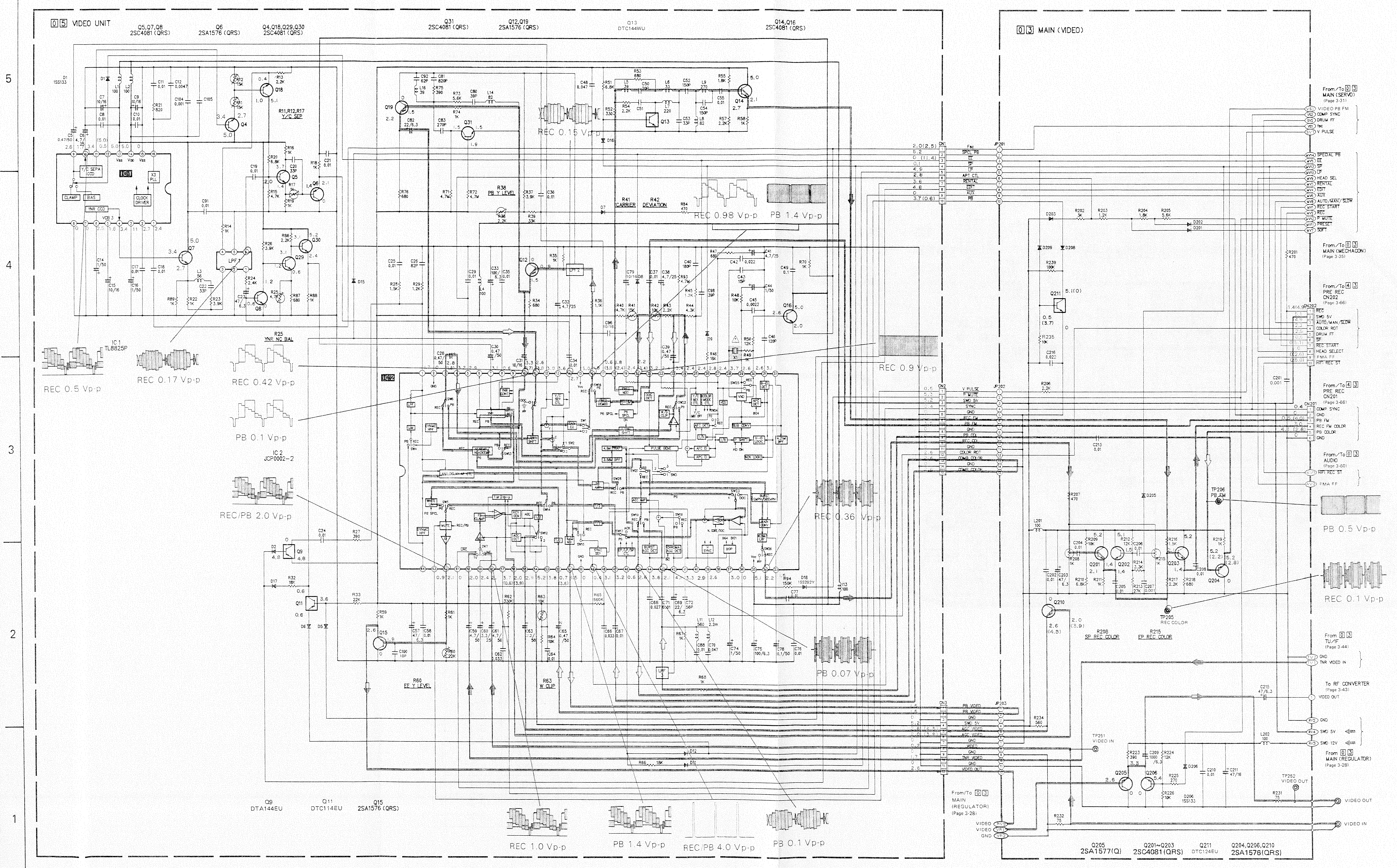

6
5
4
3
2
1
1 7 ON SCREEN
Q905
2SA1576 (RS)
Q903
2SA1576 (RS)
Q904, Q906
2SC4081 (RS)
SWD 5V
L903
100
C959
10/50
R955
39K
C921
180P
R926
1.8K
Q903
R924
2.2K
R932
2.2K
L901
100
C902
0.01
C901
100/6.3
Q906
Q904
Q905
C904
0.01
C903
100/6.3
C905
DOT CLOCK
R941
2.2K
C957
0.01
C905
45P
C906
15P
R942
1K
R905
1K
L902
22
R933
150
R931
470
IC 901
M50554-262SP
IC 901
C922
100P
R903
680
R904
10K
C924
56P
R952
10K
IC 951
M52684AP
IC 951
C954
0.01
C952
22P
C953
0.0015
CF951
R953
270
C916
30P
X901
C915
22P
R921
220
R919
10K
R918
1K
C951
0.0056
C916
COLOR BURST
C907
47P
C923
56P
R901
470
R902
4.7K
R906
470
R907
470
From/To 0 3
MAIN (REGULATOR)
CN901 (Page 3-28)
CN902
NC
OS-CLK
PROGRAM
OS-DATA
OSCE
OS RESET
GND
SWD 5V
VIDEO OUT
GND
VIDEO IN
S-SEP
OSC 1
OSC 2
OSC 3
VDD
AFC
H
S-OUT
GND
VR 1
VR 1
VR 2
VF
VD
VDD (D)
VERT
HOR
OSC IN
OSC OUT
C SYN
R
G
B
CO
BLNK
YM
CB
RS
VDD (A)
RS IN
VSS (D)
S-CLK
RESET
OSC 1
OSC 2
PAL
CS
S-DATA
PA OUT
SYEX
VSS (A)
VIDEO OUT
VIDEO IN
LEBK
LECHA
CB IN
Q902
Q901
R954
1.5K
C955
1/50
R956
22K
L905
22
L906
22
C911
1/50
R917
12K
C910
27P
C912
27P
R916
10K
C909
0.01
R930
10K
R911
12K
R912
3.3K
R909
2.2K
R908
3.3K
SWD 5V
Q901, Q902
DTA114EU
A
B
C
E
F
G
H

3.27 ON SCREEN CIRCUIT BOARD


IC951
IC903
IC901
TP901
TP902
TP903
BURST
DOT CLK
CF951
C959
L905
R955
R917
PB10501
C911
C912
L906
R918
C910
D901
Q902
R957
R930
C962
R912
R911
Q901
R908
R909
C924
C923
C907
R902
R901
C903
C904
C922
J1
R953
R952
C959
C952
C957
R956
R954
C954
C955
C951
B951
B952
B924
R931
R972
X901
C916
Q974
R975
R973
Q971
R976
C971
C958
R974
R916
R919
R921
C921
R926
C909
C902
Q903
R924
R934
Q906
R903
L902
C906
C905
C901
Q904
R941
R942
R933
Q905
R906
R904
R905
R907
B955
R932
B954
B953
CN902
L903
L901
ON SCREEN PWB ASS'Y
PB10501 -01-01 ON SCREEN PWB
C916 COLOR BURST
C905 DOT CLOCK
1
2

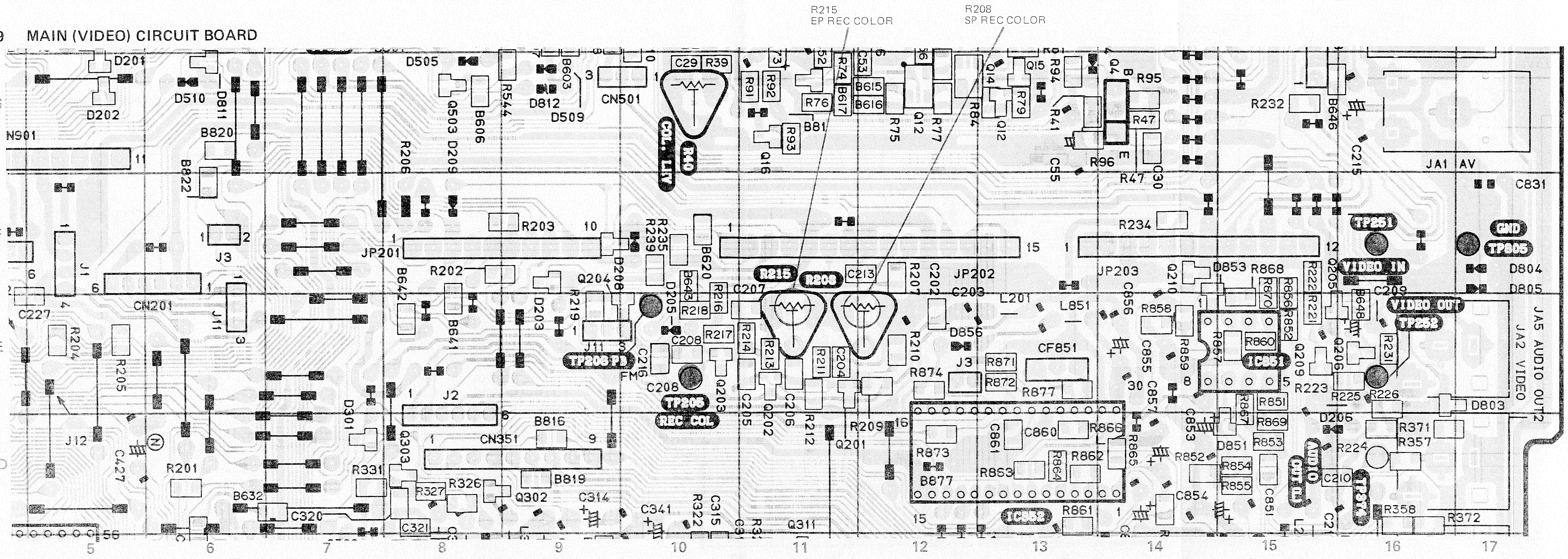
REF No.	LOCATION
TRANSISTOR	
Q901	B–1
Q902	B–1
Q903	A–1
Q904	A–1
Q905	A–1
Q906	A–1
RESISTOR	
R901	A–2
R902	A–2
R903	A–2
R904	A–2
R905	A–2
R906	A–2
R907	A–2
R908	B–2
R909	A–2
R912	B–1
R916	B–1
R917	B–1
R918	B–1
R919	A–1
R921	B–2
R924	A–1
R926	A–1
R930	A–1
R931	B–2
R932	A–1
R933	A–1
R941	A–1
R942	A–1
R952	B–1
R953	B–1
R954	B–2
R955	B–1
R956	B–1
CAPACITOR	
C902	A–1
C906	A–2
C907	B–2
C909	A–1
C910	B–1
C912	B–1
C921	A–1
C922	A–2
C923	A–2
C924	B–2
C952	B–1
C953	B–1
C954	B–2
C957	B–1
C959	B–1
ADJUSTMENT	
C905	A–2
C916	B–2

3.28 MAIN (VIDEO), VIDEO UNIT SCHEMATIC DIAGRAM



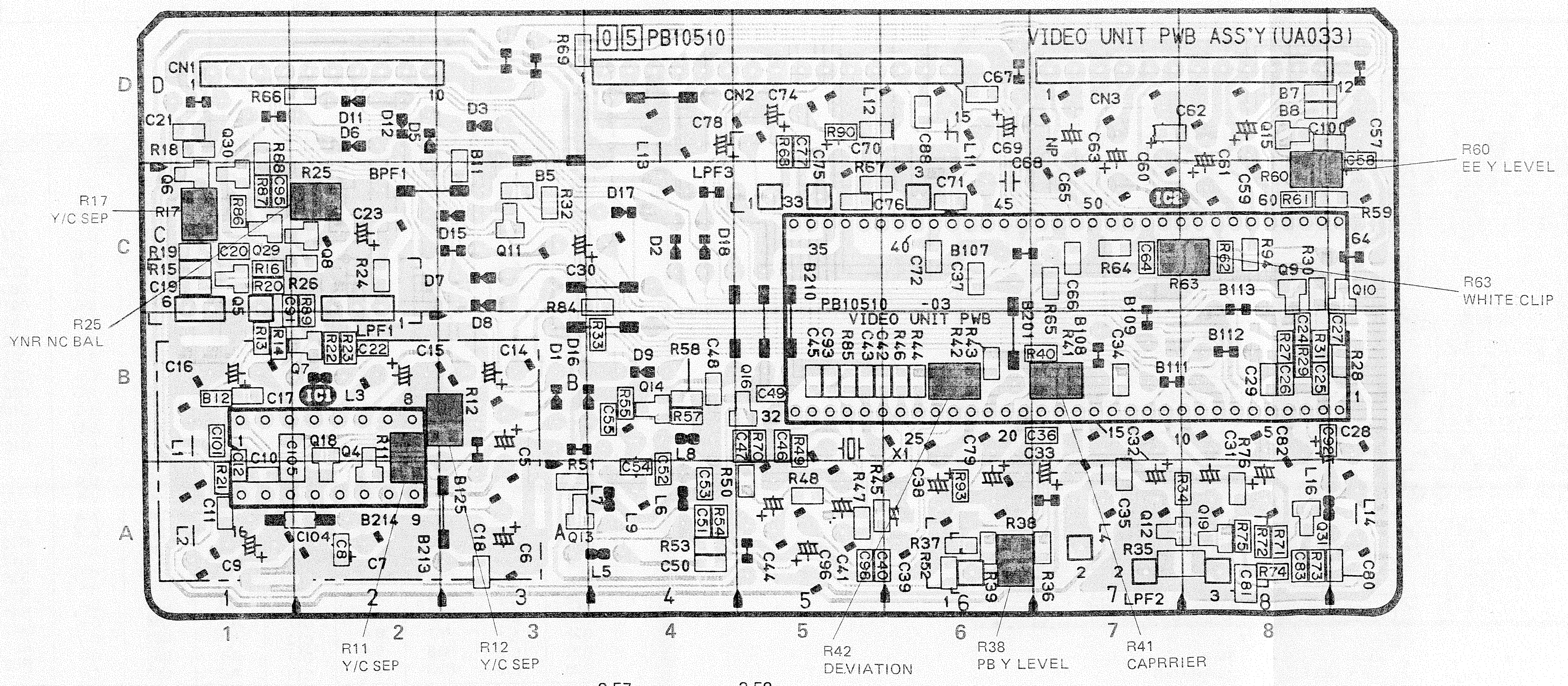
05 VIDEO UNIT
Q5,Q7,Q8 2SC4081 (QRS)
Q6 2SA1576 (QRS)
Q4,Q18,Q29,Q30 2SC4081 (QRS)
Q31 2SC4081 (QRS)
Q12,Q19 2SA1576 (QRS)
Q13 DTC144WU
Q14,Q16 2SC4081 (QRS)
03 MAIN (VIDEO)
D1 1SS133
IC1 TL8825P
IC2
IC 2 JCP0002-2
R11,R12,R17 Y/C SEP.
R38 PB Y LEVEL
R41 CARRIER
R42 DEVIATION
R25 YNR NC BAL
R60 EE Y LEVEL
R63 W CLIP
R208 SP REC COLOR
R215 EP REC COLOR
REC 0.5 Vp-p
REC 0.17 Vp-p
REC 0.42 Vp-p
PB 0.1 Vp-p
REC/PB 2.0 Vp-p
REC 0.15 Vp-p
REC 0.98 Vp-p
PB 1.4 Vp-p
REC 0.9 Vp-p
REC 0.36 Vp-p
PB 0.07 Vp-p
REC 1.0 Vp-p
PB 1.4 Vp-p
REC/PB 4.0 Vp-p
PB 0.1 Vp-p
PB 0.5 Vp-p
REC 0.1 Vp-p
TP205 REC COLOR
TP206 PB FM
TP251 VIDEO IN
TP252 VIDEO OUT
From/To 03 MAIN (SERVO) (Page 3-31)
VIDEO PB FM
COMP. SYNC
DRUM FF
Fsc
V. PULSE
SPECIAL PB
EE
SP
LP
HEAD SEL
RENTAL
EDIT
AUX
AUTO/MAN/SLOW
REC START
REC
P. MUTE
PRESET
SOFT
From/To 03 MAIN (MECHACON) (Page 3-35)
From/To 4 PRE REC CN202 (Page 3-66)
From/To 4 PRE REC CN201 (Page 3-66)
From/To 03 AUDIO (Page 3-60)
HIFI REC ST
FMA FF
From 03 TU/IF (Page 3-44)
GND
TNR VIDEO IN
To RF CONVERTER (Page 3-43)
VIDEO OUT
SWD 5V
SWD 12V
From 03 MAIN (REGULATOR) (Page 3-28)
From/To 03 MAIN (REGULATOR) (Page 3-28)
VIDEO
GND
VIDEO IN
Q9 DTA144EU
Q11 DTC114EU
Q15 2SA1576 (QRS)
Q205 2SA1577(Q)
Q201~Q203 2SC4081(QRS)
Q211 DTC124EU
Q204,Q206,Q210 2SA1576(QRS)
6
5
4
3
2
1
A
B
C
E
F
G
H

3.29 MAIN (VIDEO) CIRCUIT BOARD



R215
EP REC COLOR
R208
SP REC COLOR
COL. LITY
R40
TP208 PB
FM
TP203
REC COL
TP251
VIDEO IN
VIDEO OUT
TP252
GND
TP805
AUDIO OUT R
AUDIO OUT L
TP3
IC851
IC852
JA1 AV
JA5 AUDIO OUT2
JA2 VIDEO
JP201
JP202
JP203
CN201
CN351
CN501
N901
G
F
E
D
5
6
7
8
9
10
11
12
13
14
15
16
17

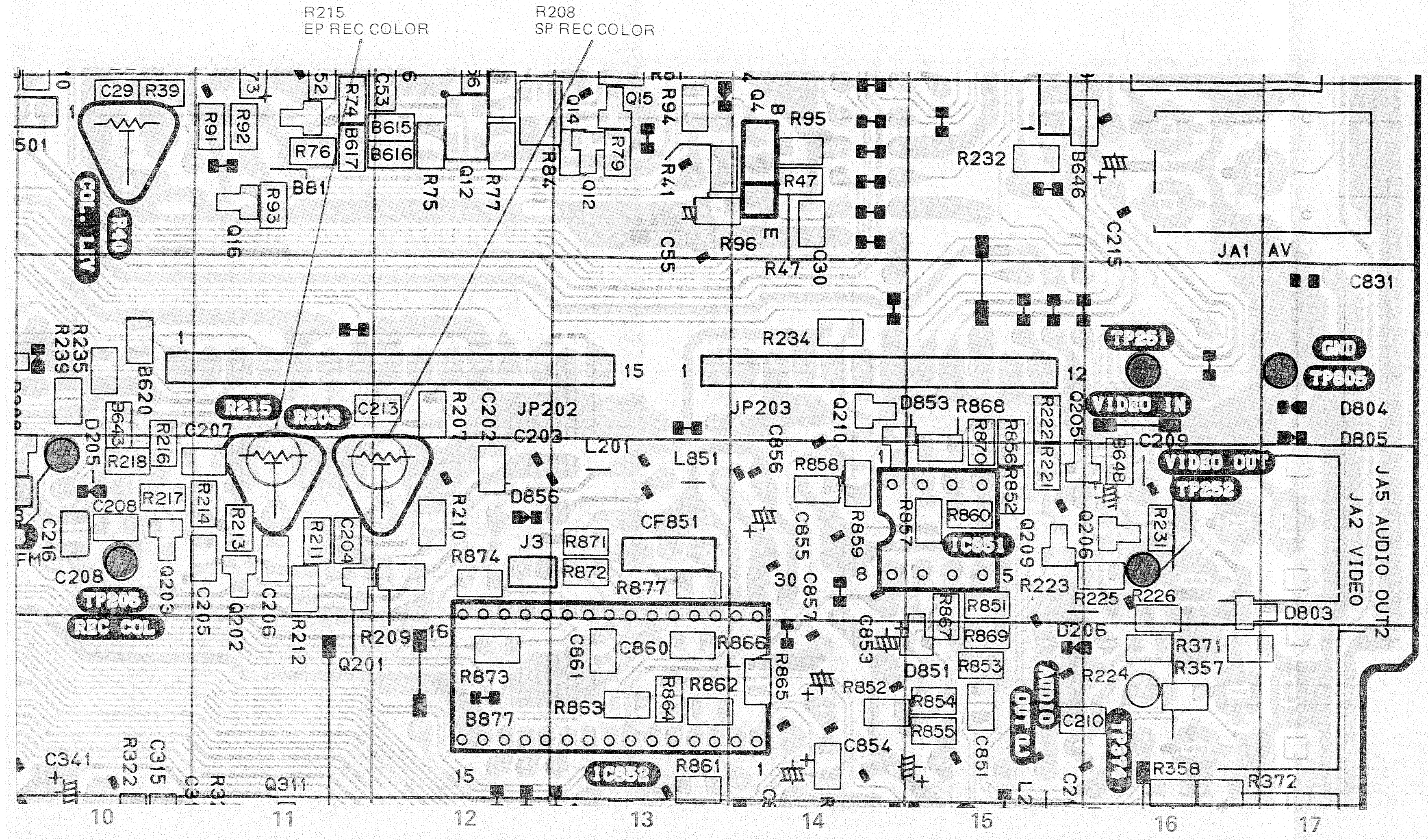
3.30 VIDEO UNIT CIRCUIT BOARD

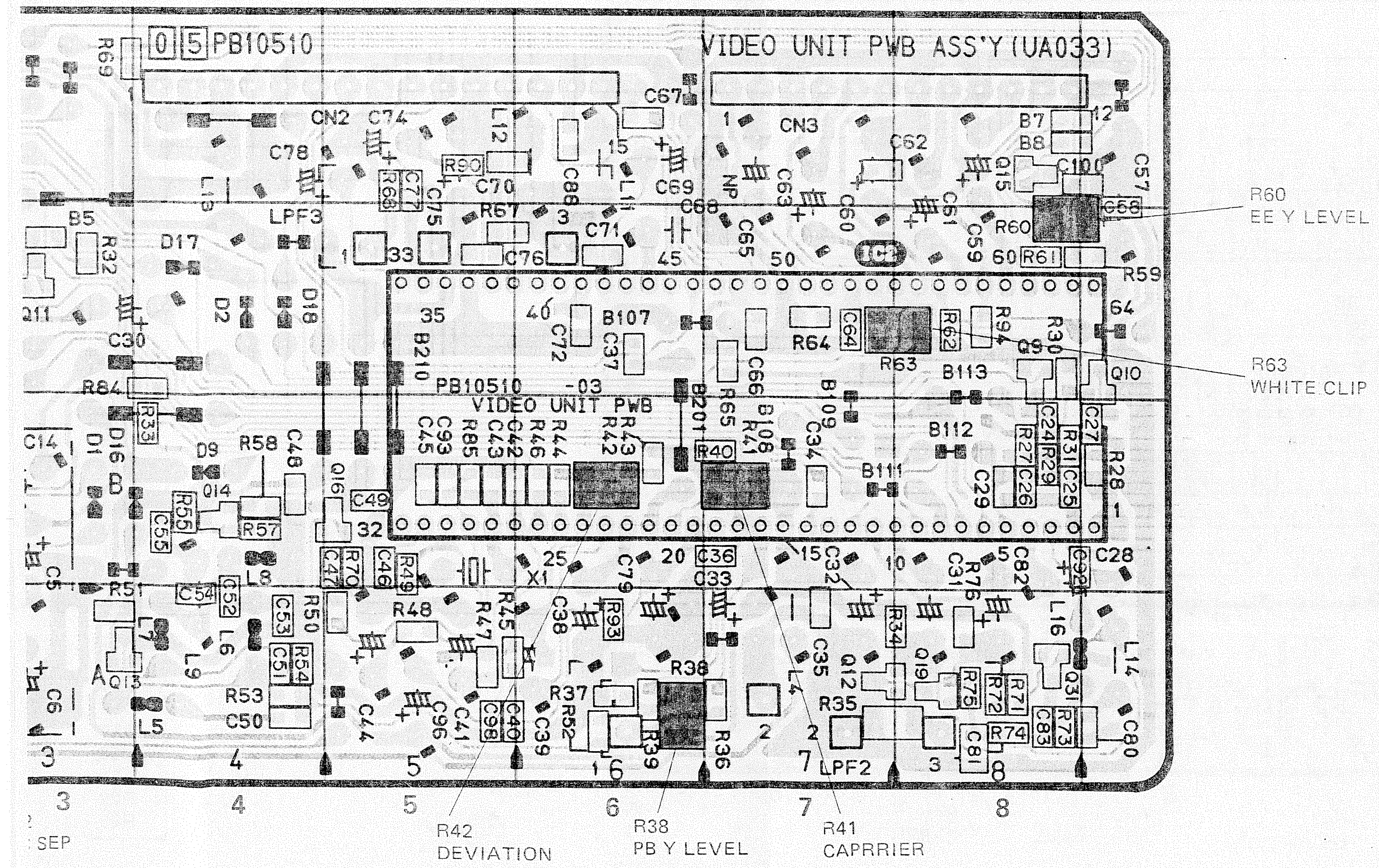


PB10510
VIDEO UNIT PWB ASS'Y (UA033)
R17
Y/C SEP
R25
YNR NC BAL
R60
EE Y LEVEL
R63
WHITE CLIP
R11
Y/C SEP
R12
Y/C SEP
R42
DEVIATION
R38
PB Y LEVEL
R41
CAPRRIER
IC1
IC2
CN1
CN2
CN3
A
B
C
D
1
2
3
4
5
6
7
8

●Only c

REF No.
TRA
Q4
Q5
Q6
Q7
Q8
Q9
Q11
Q12
Q13
Q14
Q15
Q16
Q18
Q19
Q29
Q30
Q31
RES
R13
R14
R15
R16
R18
R19
R20
R21
R22
R23

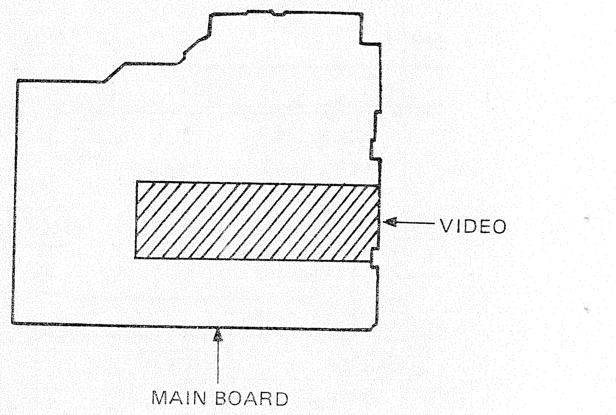

R215
EP REC COLOR
R208
SP REC COLOR
JA1 AV
C831
GND
TP805
TP251
VIDEO IN
VIDEO OUT
TP252
JA5 AUDIO OUT
JA2 VIDEO
AUDIO OUT
REC COL
TP205
IC851
IC852
10
11
12
13
14
15
16
17


PB10510
VIDEO UNIT PWB ASS'Y (UA033)
R60
EE Y LEVEL
R63
WHITE CLIP
R42
DEVIATION
R38
PB Y LEVEL
R41
CAPRRIER
SEP
3
4
5
6
7
8

- Only chip parts

REF No.	LOCATION	REF No.	LOCATION
TRANSISTOR		RESISTOR	
Q201	E-11	R225	E-16
Q202	E-11	R226	F-16
Q203	E-10	R231	E-16
Q204	E-10	R232	G-15
Q205	E-15	R234	F-14
Q206	E-16	R235	F-10
Q210	F-14	R239	F-10
Q211	F- 9	CAPACITOR	
DIODE		C201	D-6
D201	G-5	C202	E-12
D202	G-5	C204	E-11
D203	F-9	C205	E-11
RESISTOR		C206	E-11
R201	D-6	C207	E-11
R202	F-9	C208	E-10
R203	F-9	C210	D-15
R204	E-5	C213	F-12
R205	E-5	C227	F-5
R207	F-12	ADJUSTMENT	
R209	E-12	R208	E-11
R210	E-12	R215	E-11
R211	E-11		
R212	E-11		
R213	E-11		
R214	E-11		
R216	E-10		
R217	E-10		
R218	E-10		
R219	E-9		

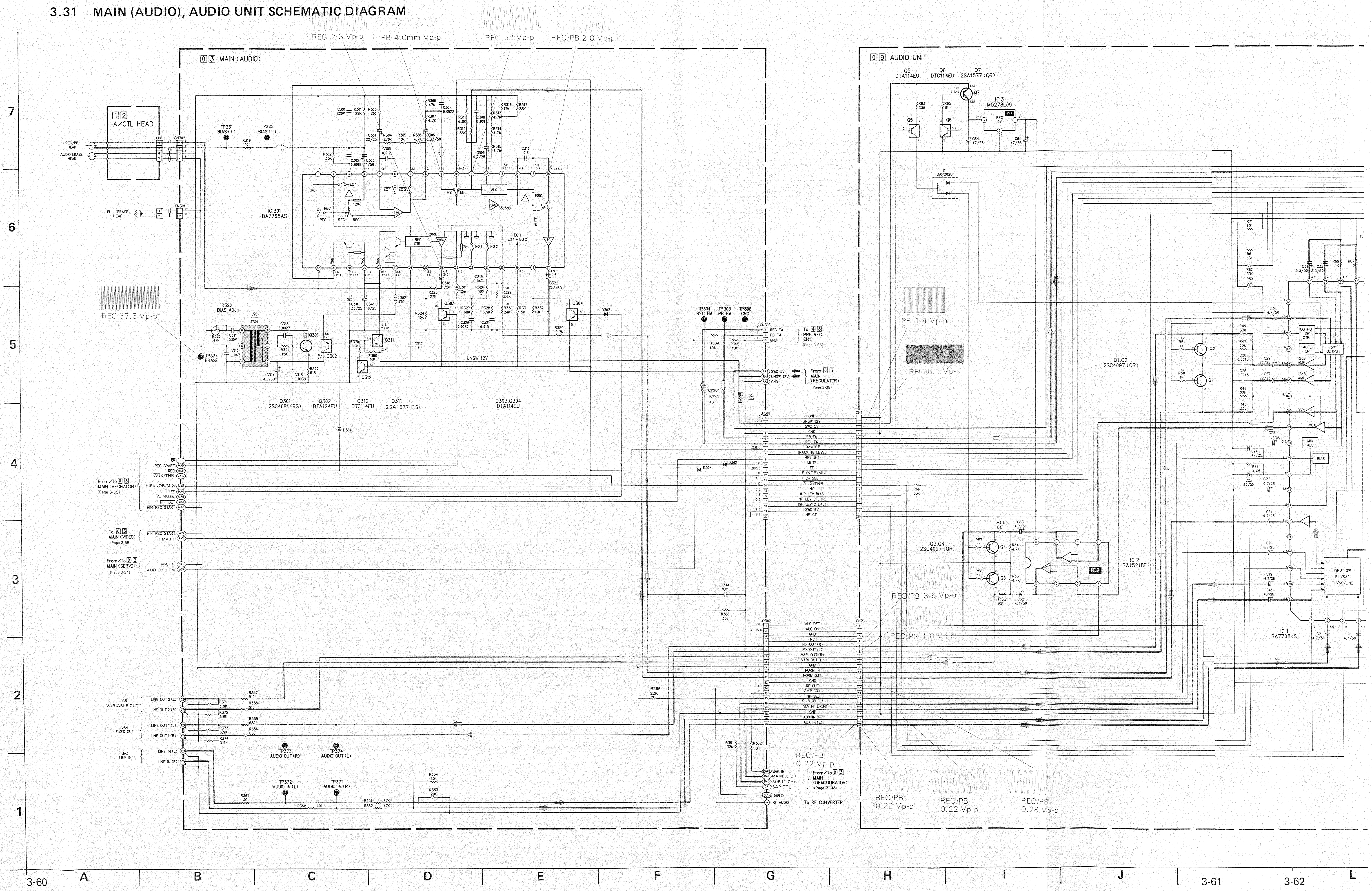
- MAIN board assembly is located in page 3-41,42

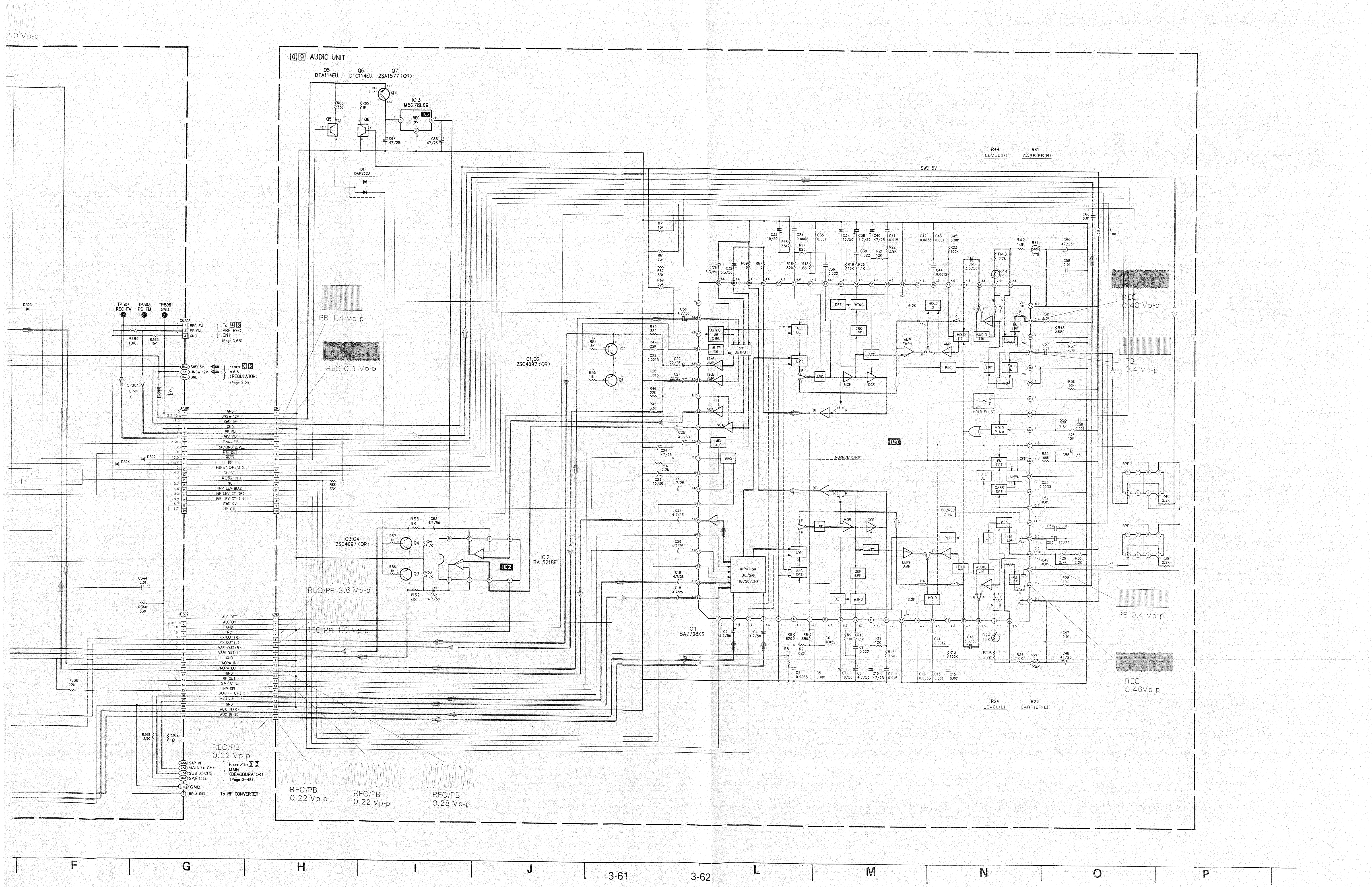

VIDEO
MAIN BOARD

- Only chip parts

REF No.	LOCATION	REF No.	LOCATION	REF No.	LOCATION	REF No.	LOCATION	REF No.	LOCATION
TRANSISTOR		RESISTOR		RESISTOR		CAPACITOR		CAPACITOR	
Q4	B-2	R24	C-2	R61	C-8	C19	C-1	C67	D-6
Q5	C-1	R26	C-2	R62	C-8	C20	C-1	C70	D-5
Q6	C-1	R27	B-8	R64	C-7	C21	C-2	C71	C-6
Q7	B-2	R28	B-9	R65	C-7	C22	C-2	C72	C-6
Q8	C-2	R29	B-8	R66	D-1	C24	B-8	C76	C-5
Q9	C-8	R32	C-3	R67	C-5	C25	B-8	C77	D-5
Q11	C-3	R33	B-4	R68	D-5	C26	B-8	C80	A-8
Q12	A-7	R34	A-7	R69	D-3	C29	B-8	C81	A-8
Q13	A-3	R35	A-7	R70	B-5	C34	B-7	C83	A-8
Q14	B-4	R36	A-7	R71	A-8	C35	A-7	C88	D-6
Q15	D-8	R37	A-6	R72	A-8	C36	B-7	C91	C-1
Q16	B-5	R39	A-6	R73	A-8	C37	C-6	C92	B-8
Q18	B-2	R40	B-7	R74	A-8	C40	A-5	C98	A-5
Q19	A-8	R43	B-6	R75	A-8	C42	B-5	C100	D-8
Q29	C-1	R44	B-6	R76	A-8	C43	B-5	C104	A-1
Q30	C-1	R45	A-5	R84	C-4	C45	B-5	C105	C-1
Q31	A-8	R46	B-6	R86	C-1	C46	B-5		
		R47	A-5	R87	C-1	C48	B-4		
RESISTOR		R48	A-5	R88	C-1	C49	B-5	ADJUSTMENT	
R13	B-1	R49	B-5	R89	C-2	C50	A-4	R11	B-2
R14	B-1	R50	A-5	R93	A-6	C51	A-4	R12	B-3
R15	C-1	R51	A-3	R94	C-8	C52	A-4	R17	C-1
R16	C-1	R52	A-6	CAPACITOR		C53	A-4	R25	C-2
R18	D-1	R53	A-4	C8	A-2	C54	A-4	R38	A-6
R19	C-1	R54	A-4	C10	A-1	C55	B-4	R41	B-7
R20	C-1	R55	B-4	C11	A-1	C58	C-9	R42	B-6
R21	A-1	R57	B-4	C12	A-1	C62	D-7	R60	C-8
R22	B-2	R58	B-4	C17	B-1	C64	C-7	R63	C-7
R23	B-2	R59	C-8	C18	A-3	C66	C-7		

3.31 MAIN (AUDIO), AUDIO UNIT SCHEMATIC DIAGRAM

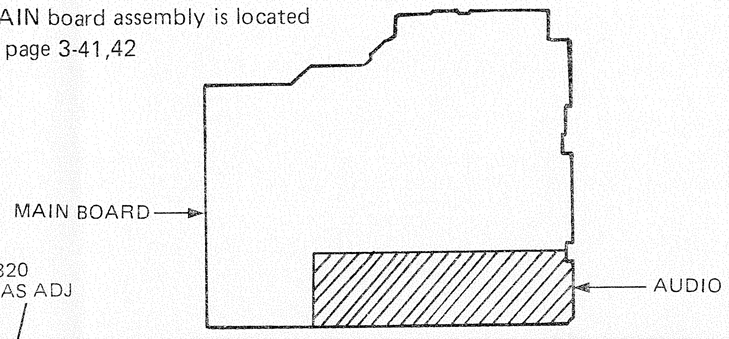

REC 2.3 Vp-p
PB 4.0mm Vp-p
REC 52 Vp-p
REC/PB 2.0 Vp-p
03 MAIN (AUDIO)
09 AUDIO UNIT
12 A/CTL HEAD
REC/PB HEAD
AUDIO ERASE HEAD
FULL ERASE HEAD
TP331 BIAS (+)
TP332 BIAS (−)
IC301 BA7765AS
REC 37.5 Vp-p
R320 BIAS ADJ
TP334 ERASE
T301
Q301 2SC4081 (RS)
Q302 DTA124EU
Q312 DTC114EU
Q311 2SA1577(RS)
Q303,Q304 DTA114EU
UNSW 12V
ALC
REC CTRL
MUTE
TP304 REC FM
TP303 PB FM
TP806 GND
To 43 PRE REC CN1 (Page 3-66)
From 03 MAIN (REGULATOR) (Page 3-28)
SW5 5V
UNSW 12V
GND
From/To 03 MAIN (MECHACON) (Page 3-35)
REC START
REC
AUX/TNR
HiFi/NOR/MIX
EE
A. MUTE
HIFI DET
HIFI REC START
To 03 MAIN (VIDEO) (Page 3-56)
FMA FF
From/To 03 MAIN (SERVO) (Page 3-31)
AUDIO PB FM
JA5 VARIABLE OUT
LINE OUT 2 (L)
LINE OUT 2 (R)
JA4 FIXED OUT
LINE OUT 1 (L)
LINE OUT 1 (R)
JA3 LINE IN
LINE IN (L)
LINE IN (R)
TP373 AUDIO OUT (R)
TP374 AUDIO OUT (L)
TP372 AUDIO IN (L)
TP371 AUDIO IN (R)
JP301
JP302
CN1
CN2
TRACKING LEVEL
INP LEV BIAS
INP LEV CTL (R)
INP LEV CTL (L)
SW5 9V
HP CTL
ALC DET
ALC ON
FIX OUT (R)
FIX OUT (L)
VARI OUT (R)
VARI OUT (L)
NORM IN
NORM OUT
SAP CTL
RF OUT
INP SEL
SUB (R CH)
MAIN (L CH)
AUX IN (R)
AUX IN (L)
SAP IN
MAIN (L CH)
SUB (C CH)
SAP CTL
GND
RF AUDIO
From/To 03 MAIN (DEMODURATOR) (Page 3-48)
To RF CONVERTER
REC/PB 0.22 Vp-p
REC/PB 0.22 Vp-p
REC/PB 0.22 Vp-p
REC/PB 0.28 Vp-p
PB 1.4 Vp-p
REC 0.1 Vp-p
REC/PB 3.6 Vp-p
REC/PB 1.0 Vp-p
Q5 DTA114EU
Q6 DTC114EU
Q7 2SA1577 (QR)
IC3 M5278L09
D1 DAP202U
Q1,Q2 2SC4097 (QR)
Q3,Q4 2SC4097 (QR)
IC2 BA15218F
IC1 BA7708KS
OUTPUT SW CTRL
MUTE OFF
SW OUTPUT
12dB AMP
VCA
MIX ALC
BIAS
INPUT SW BIL/SAP TU/SC/LINE
7
6
5
4
3
2
1
A
B
C
D
E
F
G
H
I
J
L

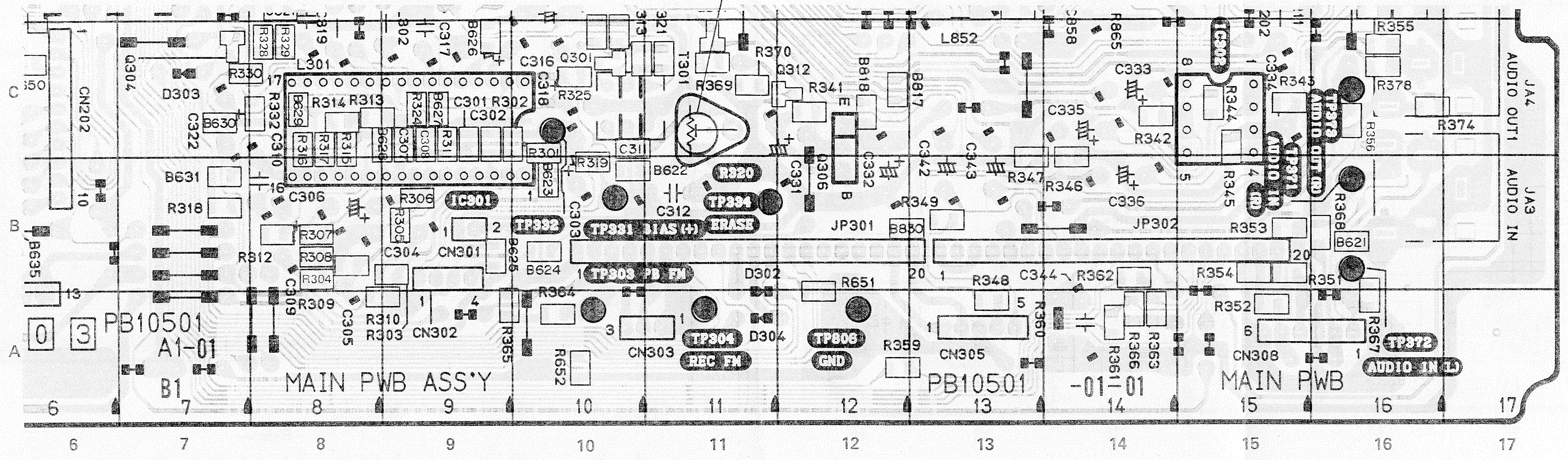

2.0 Vp-p
09 AUDIO UNIT
Q5 DTA114EU
Q6 DTC114EU
Q7 2SA1577 (QR)
IC3 M5278L09
REG 9V
C64 47/25
C65 47/25
R63 330
R65 1K
D1 DAP202U
SWD 5V
R44 LEVEL(R)
R41 CARRIER(R)
TP304 REC FM
TP303 PB FM
TP806 GND
CN303
REC FM
PB FM
GND
To 4 3 PRE REC CN1 (Page 3-66)
R364 10K
R365 10K
SWD 5V
UNSW 12V
GND
From 0 3 MAIN (REGULATOR) (Page 3-28)
CP301 ICP-N 10
D303
D302
D304
JP301
CN1
GND
UNSW 12V
SWD 5V
GND
PB FM
REC FM
FMA EE
TRACKING LEVEL
HIFI DET
MUTE
EE
HiFi/NOR/MIX
CH SEL
AUX/TNR
NC
INP LEV BIAS
INP LEV CTL (R)
INP LEV CTL (L)
SWD 9V
HP CTL
R66 33K
PB 1.4 Vp-p
REC 0.1 Vp-p
Q1,Q2 2SC4097 (QR)
Q3,Q4 2SC4097 (QR)
IC2 BA15218F
IC1 BA7708KS
REC/PB 3.6 Vp-p
REC/PB 1.0 Vp-p
C344 0.01
R360 330
R366 22K
JP302
CN2
ALC DET
ALC ON
GND
NC
FIX OUT (R)
FIX OUT (L)
VARI OUT (R)
VARI OUT (L)
GND
NORM IN
NORM OUT
GND
RF OUT
SAP CTL
INP SEL
SUB (R CH)
MAIN (L CH)
GND
AUX IN (R)
AUX IN (L)
R361 33K
R362 0
REC/PB 0.22 Vp-p
SAP IN
MAIN (L CH)
SUB (C CH)
SAP CTL
GND
RF AUDIO
From/To 0 3 MAIN (DEMODURATOR) (Page 3-48)
To RF CONVERTER
REC/PB 0.22 Vp-p
REC/PB 0.22 Vp-p
REC/PB 0.28 Vp-p
OUTPUT SW CTRL
MUTE OFF
SW OUTPUT
12dB AMP
VCA
MIX ALC
BIAS
INPUT SW BL/SAP TU/SC/LINE
ALC DET
EVR
LPF
MOR
CCR
DET
WTNG
28K LPF
ATT
AMP EMPH
HOLD 2
HOLD 1
AUDIO LIM
VCO
FM LPF
FM LIM
PLC
P.D
HOLD PULSE
HOLD P MM
FM DET
D.O DET
ENVE
CARR DET
PB/REC CTRL
NORM/MIX/HIFI
BF
IC1
REC 0.48 Vp-p
PB 0.4 Vp-p
BPF 2
BPF 1
PB 0.4 Vp-p
REC 0.46Vp-p
R24 LEVEL(L)
R27 CARRIER(L)
F
G
H
I
J
L
M
N
O
P

3.32 MAIN (AUDIO), AUDIO UNIT CIRCUIT BOARDS

– AUDIO –

●MAIN board assembly is located in page 3-41,42


MAIN BOARD
AUDIO


R320
BIAS ADJ
CN202
Q304
D303
C322
B630
R330
L301
R314
R313
R332
C310
B631
R318
B635
C306
R312
R307
R308
R304
C309
R309
C305
R310
R303
CN302
R306
R305
IC301
C304
CN301
C317
B626
C316
Q301
C318
R325
C301
R302
C302
R301
R319
B623
B625
B624
TP332
C303
R364
R365
R652
C311
B622
C312
TP331 BIAS (+)
TP303 PB FM
CN303
TP304
REC FM
T301
R369
R370
Q312
R341
R320
TP334
ERASE
C331
D302
D304
B618
B817
Q306
C332
JP301
B830
R651
TP808
GND
R359
L852
C342
C343
R349
C858
R865
C333
C335
R347
R346
C336
R342
IC302
R348
C344
R362
R360
R361
R366
R363
CN305
JP302
R353
R354
R352
R343
R344
R345
TP373
AUDIO OUT (R)
TP371
AUDIO IN (R)
R355
R378
R356
R374
R368
B621
R351
R367
TP372
AUDIO IN (L)
CN308
JA4
AUDIO OUT1
JA3
AUDIO IN
PB10501
A1-01
B1
MAIN PWB ASS'Y
PB10501
-01-01
MAIN PWB
A
B
C
6
7
8
9
10
11
12
13
14
15
16
17

●Only chip parts

REF No.	LOCATION
TRANSISTOR	
Q301	C–10
Q302	D–8
Q303	D–8
Q304	C–7
Q311	C–11
Q312	C–12
DIODE	
D301	D–7
RESISTOR	
R301	C–10
R302	C–10
R303	B–9
R304	B–8
R305	B–9
R306	B–9
R307	B–8
R309	B–8
R311	C–9
R312	B–8
R313	C–9
R314	C–8
R315	C–8
R316	C–8
R317	C–8

REF No.	LOCATION
RESISTOR	
R319	B–10
R321	C–11
R322	C–10
R324	C–9
R325	C–10
R326	D–8
R327	D–8
R328	C–8
R329	C–8
R330	C–8
R331	D–7
R332	C–8
R351	B–15
R352	A–15
R353	B–15
R354	B–15
R355	C–16
R356	C–16
R357	D–16
R358	D–16
R359	A–12
R361	A–14
R362	B–14
R364	A–10
R365	A–10

REF No.	LOCATION
RESISTOR	
R366	A–14
R367	A–16
R368	B–16
R369	C–11
R370	C–11
R371	D–16
R372	D–16
R374	C–16
CAPACITOR	
C301	C–9
C302	C–9
C307	C–9
C308	C–9
C311	C–10
C313	C–11
C315	C–10
C320	D–8
C321	D–8

●Only chip parts

REF No.	LOCATION
TRANSISTOR	
Q1	B–2
Q2	A–2
Q3	B–1
Q4	A–1
Q5	A–6
Q6	B–6
Q7	A–6
DIODE	
D1	B–6
RESISTOR	
R1	D–2
R2	D–2
R5	C–2
R6	D–3
R7	D–3
R8	D–3
R9	C–4
R10	C–3
R11	D–4
R12	C–4
R13	C–4
R14	D–2
R15	A–3

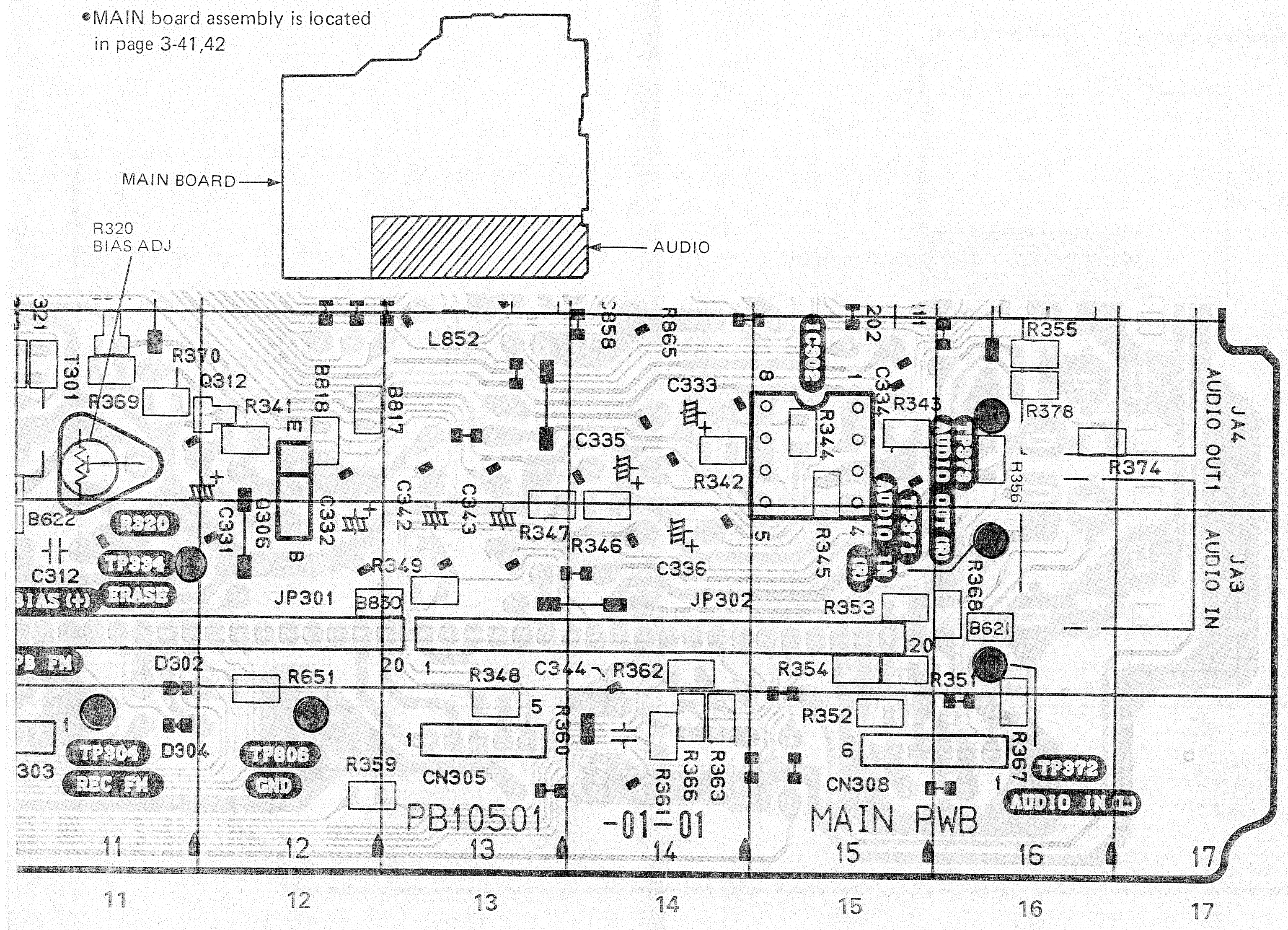
REF No.	LOCATION
RESISTOR	
R16	B–3
R17	B–3
R18	B–3
R19	A–4
R20	B–4
R21	B–5
R22	B–5
R23	C–3
R25	C–3
R26	C–3
R28	C–4
R29	D–5
R30	D–5
R33	D–5
R34	D–5
R35	C–5
R36	B–5
R37	D–5
R38	C–4
R39	D–6
R40	C–6
R42	B–4
R43	C–4
R45	B–2
R46	B–2

REF No.	LOCATION
RESISTOR	
R47	B–2
R48	C–5
R49	B–2
R50	B–2
R51	A–2
R52	B–1
R53	B–1
R54	A–1
R55	A–1
R56	B–1
R57	A–1
R59	B–4
R61	B–4
R62	C–4
R63	A–6
R65	A–6
R67	A–3
R69	B–3
R71	A–3

REF No.	LOCATION
CAPACITOR	
C12	D–4
C13	D–4
C14	C–4
C15	D–4
C26	B–2
C28	B–2
C42	B–3
C43	B–3
C44	B–3
C45	C–3
C47	C–6
C49	D–5
C51	C–5
C52	D–5
C53	C–5
C56	C–5
C57	D–5
C58	C–5
C60	C–5

REF No.	LOCATION
ADJUSTMENT	
R24	C–3
R27	C–3
R41	C–3
R44	B–4

●MAIN board assembly is located in page 3-41,42


MAIN BOARD
AUDIO
R320
BIAS ADJ
T301
R370
Q312
R369
R341
B818
B817
L852
C858
R865
IC302
C333
C334
R343
R355
R378
JA4
AUDIO OUT1
JA3
AUDIO IN
R374
C335
R344
R342
R356
AUDIO OUT (R)
AUDIO OUT (L)
AUDIO IN (R)
TP378
TP371
R368
B622
R320
TP334
C331
D306
C332
C342
C343
R347
R346
C336
R345
C312
ERASE
BIAS (+)
R349
JP301
B860
JP302
R353
B621
D302
R651
R348
C344
R362
R354
R351
R352
R360
R367
TP304
REC FM
D304
TP606
GND
R359
CN305
R361
R366
R363
CN308
TP372
AUDIO IN (L)
303
PB10501
-01-01
MAIN PWB
11
12
13
14
15
16
17

●Only chip parts

REF No.	LOCATION
TRANSISTOR	
Q1	B-2
Q2	A-2
Q3	B-1
Q4	A-1
Q5	A-6
Q6	B-6
Q7	A-6
DIODE	
D1	B-6
RESISTOR	
R1	D-2
R2	D-2
R5	C-2
R6	D-3
R7	D-3
R8	D-3
R9	C-4
R10	C-3
R11	D-4
R12	C-4
R13	C-4
R14	D-2
R15	A-3

REF No.	LOCATION
RESISTOR	
R16	B-3
R17	B-3
R18	B-3
R19	A-4
R20	B-4
R21	B-5
R22	B-5
R23	C-3
R25	C-3
R26	C-3
R28	C-4
R29	D-5
R30	D-5
R33	D-5
R34	D-5
R35	C-5
R36	B-5
R37	D-5
R38	C-4
R39	D-6
R40	C-6
R42	B-4
R43	C-4
R45	B-2
R46	B-2

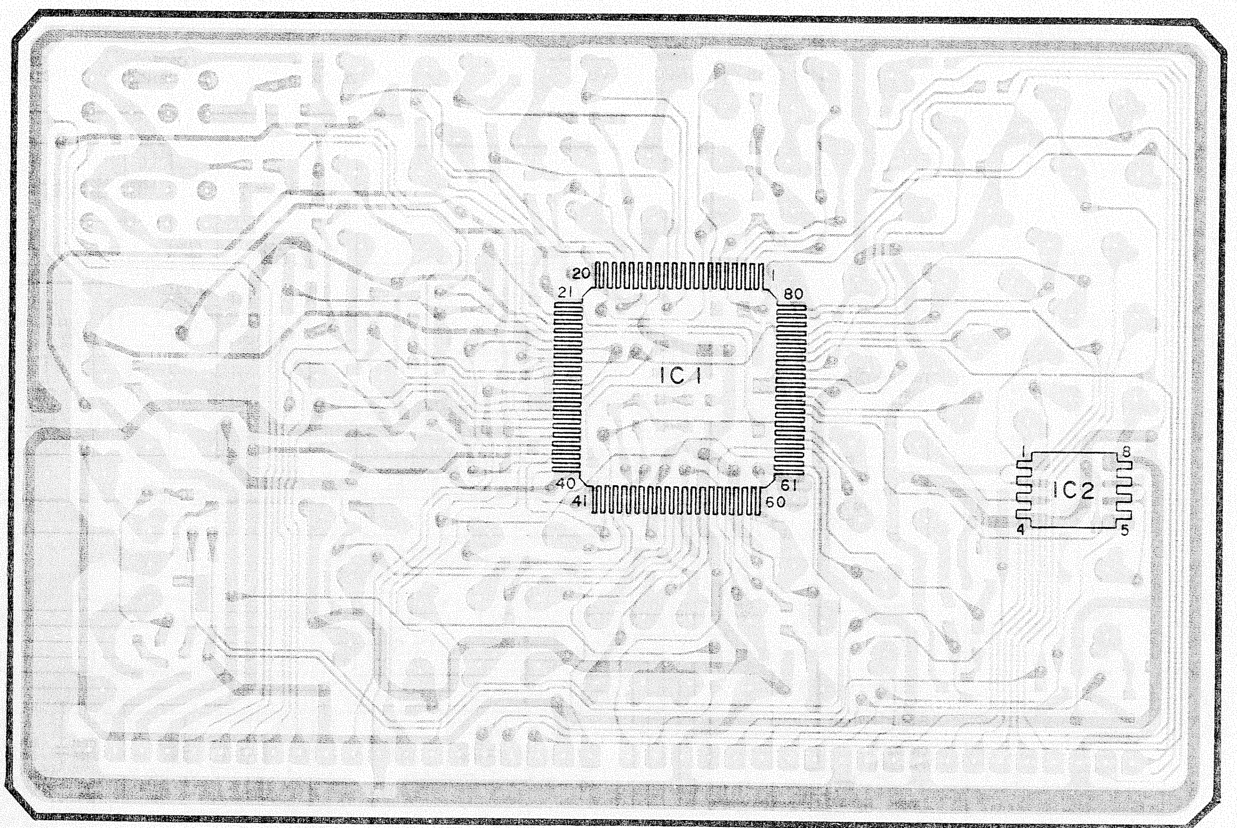
REF No.	LOCATION
RESISTOR	
R47	B-2
R48	C-5
R49	B-2
R50	B-2
R51	A-2
R52	B-1
R53	B-1
R54	A-1
R55	A-1
R56	B-1
R57	A-1
R59	B-4
R61	B-4
R62	C-4
R63	A-6
R65	A-6
R67	A-3
R69	B-3
R71	A-3

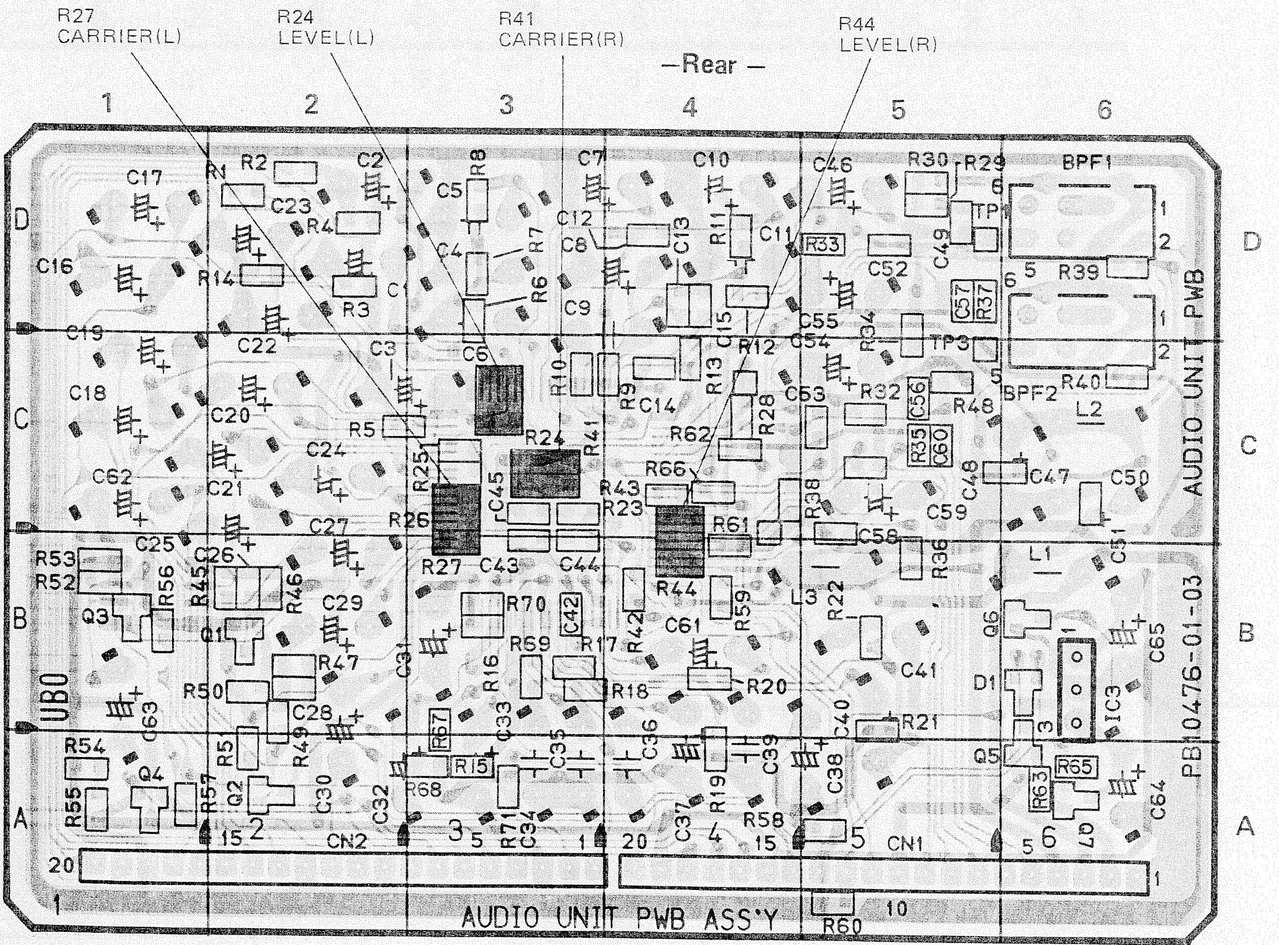
REF No.	LOCATION
CAPACITOR	
C12	D-4
C13	D-4
C14	C-4
C15	D-4
C26	B-2
C28	B-2
C42	B-3
C43	B-3
C44	B-3
C45	C-3
C47	C-6
C49	D-5
C51	C-5
C52	D-5
C53	C-5
C56	C-5
C57	D-5
C58	C-5
C60	C-5

REF No.	LOCATION
ADJUSTMENT	
R24	C-3
R27	C-3
R41	C-3
R44	B-4

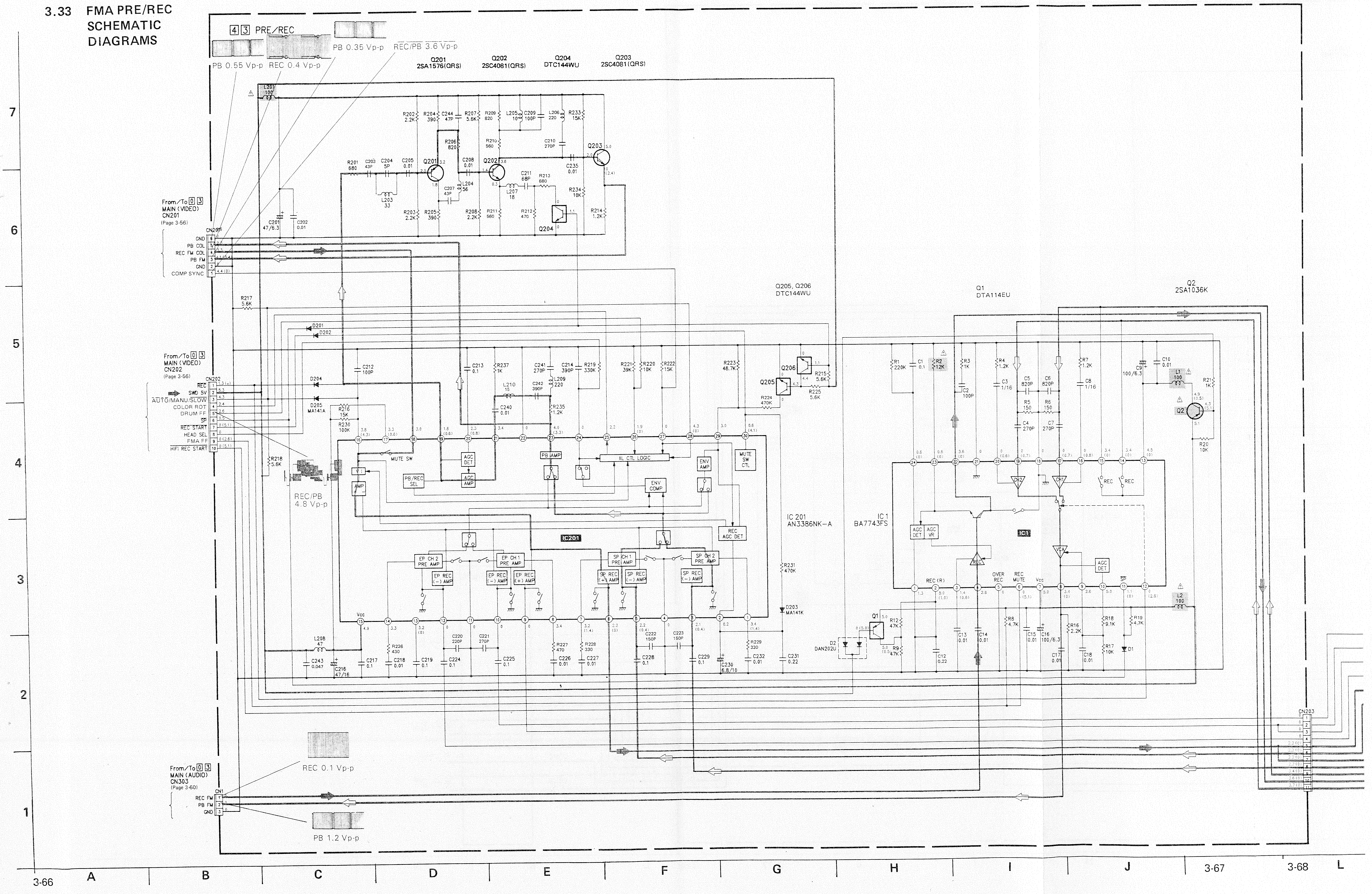
– AUDIO UNIT –

– Front –

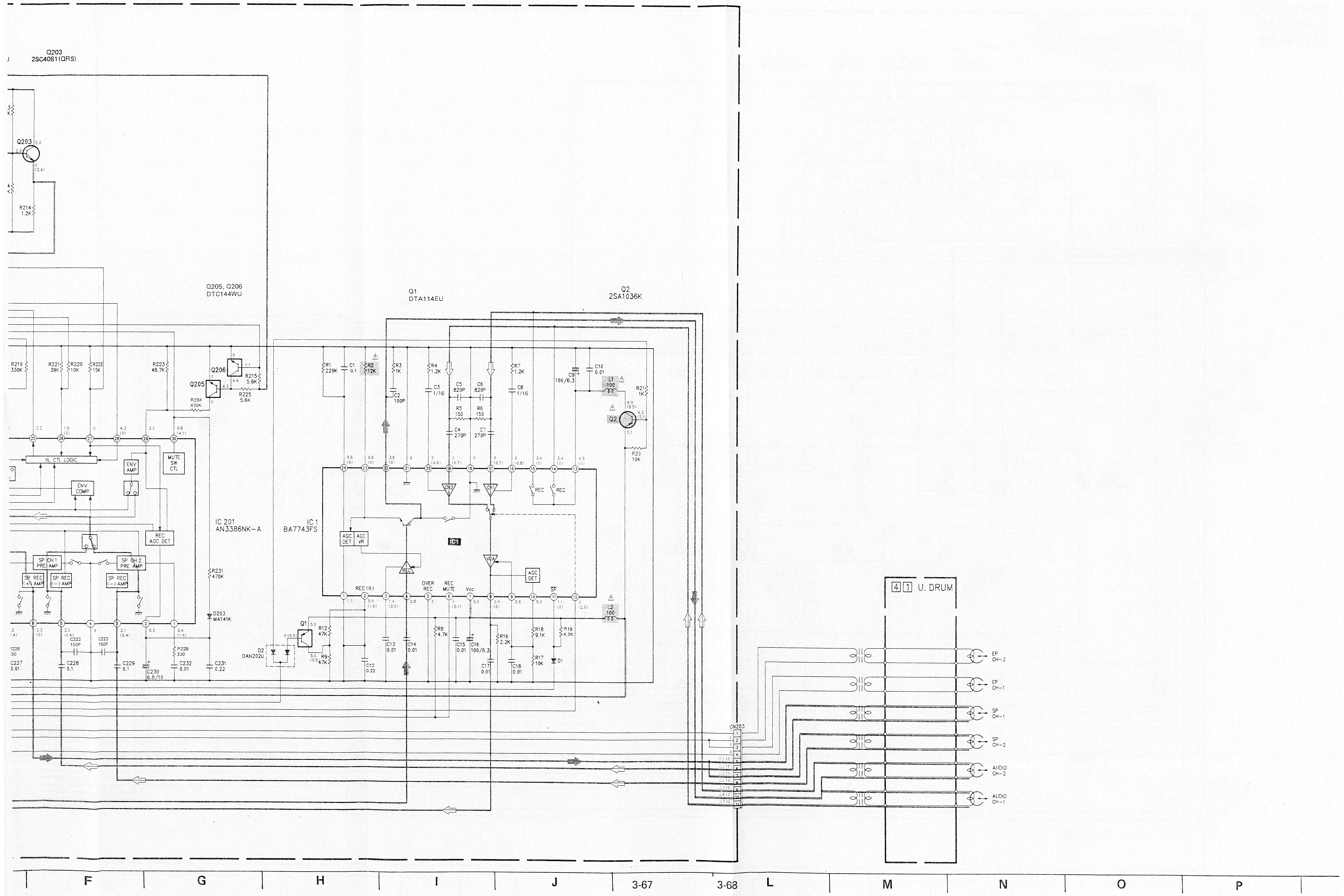

IC1
IC2
20
21
80
1
40
41
60
61
8
4
5


R27
CARRIER(L)
R24
LEVEL(L)
R41
CARRIER(R)
R44
LEVEL(R)
–Rear –
1
2
3
4
5
6
D
C
B
A
C17
R1
R2
C23
C2
R8
C7
C10
C46
R30
R29
BPF1
C16
R4
C5
C12
C8
R11
C11
R33
C52
C49
TP1
R39
R14
C4
R7
C13
C1
R3
R6
C9
C55
C54
R34
TP3
C57
R37
C19
C22
C3
C6
R10
R9
R12
C15
R13
R28
C53
R32
C56
R48
BPF2
R40
L2
C18
C20
R5
R24
C14
R62
R35
C60
C24
R25
C45
R41
R66
C47
C50
C62
C21
R26
R43
R23
R38
C59
C48
C27
C25
R27
C43
C44
R61
C58
R36
L1
C51
R53
R52
C26
R56
R45
R46
R44
R59
R22
Q3
Q1
C29
R70
C42
R42
C61
L3
Q6
C65
R47
R69
R17
C41
D1
IC3
R50
C31
R16
R18
R20
C28
R67
C33
R21
R49
R15
C35
C36
C39
C40
Q5
C63
R54
R5
C30
C32
R68
R19
C38
R65
R63
Q4
Q2
R57
C34
R71
C37
R58
Q7
C64
R55
15
2
3
5
1
20
4
5
6
CN2
CN1
20
1
10
R60
UB0
PB10476-01-03
AUDIO UNIT PWB
AUDIO UNIT PWB ASS'Y

3.33 FMA PRE/REC SCHEMATIC DIAGRAMS

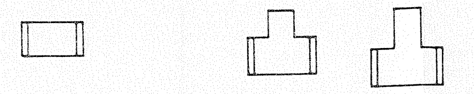


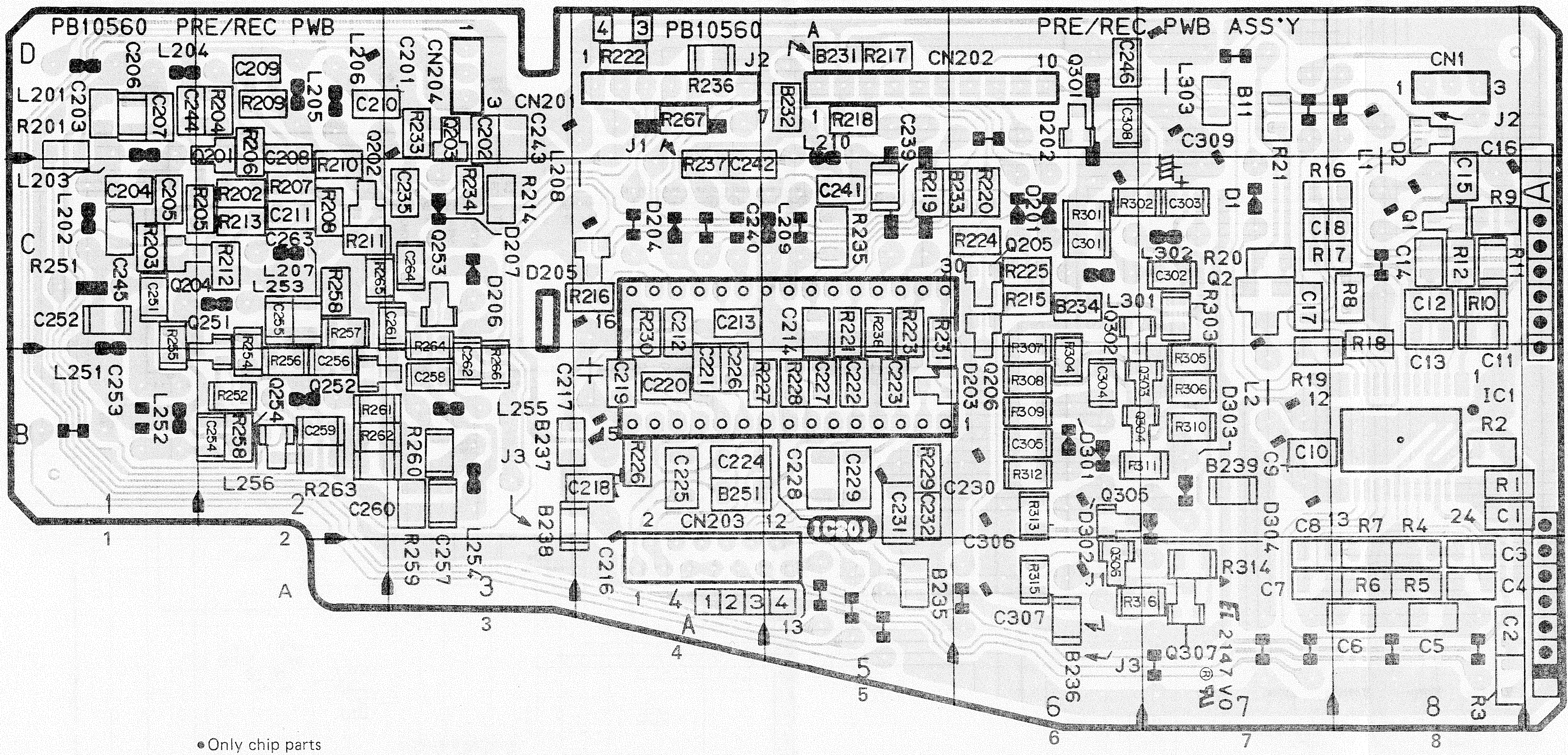
4 3 PRE/REC
PB 0.55 Vp-p
REC 0.4 Vp-p
PB 0.35 Vp-p
REC/PB 3.6 Vp-p
Q201 2SA1576(QRS)
Q202 2SC4081(QRS)
Q204 DTC144WU
Q203 2SC4081(QRS)
From/To 0 3 MAIN (VIDEO) CN201 (Page 3-56)
CN201
GND
PB COL
REC FM COL
PB FM
GND
COMP SYNC
From/To 0 3 MAIN (VIDEO) CN202 (Page 3-56)
CN202
REC
SWD 5V
AUTO/MANU/SLOW
COLOR ROT
DRUM FF
SP
REC START
HEAD SEL
FMA FF
HiFi REC START
REC/PB 4.8 Vp-p
L201 100
C201 47/6.3
C202 0.01
R217 5.6K
R218 5.6K
D201
D202
D204
D205 MA141A
R216 15K
R230 100K
C212 100P
R201 680
C203 43P
C204 5P
C205 0.01
L203 33
R202 2.2K
R203 2.2K
R204 390
R205 390
R206 820
C244 47P
C207 43P
C208 0.01
L204 56
R207 5.6K
R208 2.2K
R209 820
R210 560
R211 560
L205 10
C209 100P
L207 18
C211 68P
R213 680
R212 470
L206 220
C210 270P
R233 15K
C235 0.01
R234 10K
R214 1.2K
C213 0.1
R237 1K
L210 15
C240 0.01
C241 270P
C242 390P
C214 390P
L209 220
R235 1.2K
R219 330K
R221 39K
R220 10K
R222 15K
R223 46.7K
Q205, Q206 DTC144WU
Q205
Q206
R224 470K
R215 5.6K
R225 5.6K
MUTE SW
AGC DET
AGC AMP
PB/REC SEL
PB AMP
IIL CTL LOGIC
ENV AMP
ENV COMP
MUTE SW CTL
REC AGC DET
IC201
EP CH 2 PRE AMP
EP CH 1 PRE AMP
EP REC (-) AMP
EP REC (+) AMP
SP CH 1 PRE AMP
SP CH 2 PRE AMP
SP REC (+) AMP
SP REC (-) AMP
IC 201 AN3386NK-A
Vcc
L208 47
C243 0.047
C216 47/16
C217 0.1
R226 430
C218 0.01
C219 0.1
C220 220P
C221 270P
C224 0.1
C225 0.1
R227 470
C226 0.01
R228 330
C227 0.01
C222 150P
C223 150P
C228 0.1
C229 0.1
C230 6.8/10
R229 330
C232 0.01
C231 0.22
R231 470K
D203 MA141K
Q1 DTA114EU
Q2 2SA1036K
IC 1 BA7743FS
IC1
R1 220K
C1 0.1
R2 12K
R3 1K
C2 100P
R4 1.2K
C3 1/16
C5 820P
C6 820P
R5 150
R6 150
C4 270P
C7 270P
R7 1.2K
C8 1/16
C9 100/6.3
C10 0.01
L1 100
R21 1K
R20 10K
AGC DET
AGC VR
CH2
CH1
REC
VCA
AGC DET
REC (R)
OVER REC
REC MUTE
Vcc
SP
D2 DAN202U
Q1
R12 47K
R9 47K
C12 0.22
C13 0.01
C14 0.01
R8 4.7K
C15 0.01
C16 100/6.3
C17 0.01
R16 2.2K
C18 0.01
R18 9.1K
R17 10K
R19 4.7K
D1
L2 100
CN203
From/To 0 3 MAIN (AUDIO) CN303 (Page 3-60)
CN1
REC FM
PB FM
GND
REC 0.1 Vp-p
PB 1.2 Vp-p
7
6
5
4
3
2
1
A
B
C
D
E
F
G
H
I
J
L


Q203
2SC4081(QRS)
Q203
R214
1.2K
Q205, Q206
DTC144WU
Q205
Q206
R215
5.6K
R225
5.6K
R224
470K
R219
330K
R221
39K
R220
10K
R222
15K
R223
48.7K
IIL CTL LOGIC
ENV AMP
ENV COMP
MUTE SW CTL
REC AGC DET
SP CH 1 PRE AMP
SP CH 2 PRE AMP
SP REC (+) AMP
SP REC (−) AMP
SP REC (−) AMP
IC 201
AN3386NK−A
R231
470K
D203
MA141K
R228
330
C227
0.01
C222
150P
C223
150P
C228
0.1
C229
0.1
C230
6.8/10
R229
330
C232
0.01
C231
0.22
Q1
DTA114EU
Q2
2SA1036K
R1
220K
C1
0.1
R2
12K
R3
1K
C2
100P
R4
1.2K
C3
1/16
C5
820P
C6
820P
R5
150
R6
150
C4
270P
C7
270P
R7
1.2K
C8
1/16
C9
100/6.3
C10
0.01
L1
100
R21
1K
Q2
R20
10K
CH2
CH1
REC
REC
IC 1
BA7743FS
AGC DET
AGC VR
IC1
REC
VCA
AGC DET
REC (R)
OVER REC
REC MUTE
Vcc
SP
L2
100
Q1
R12
47K
R9
47K
D2
DAN202U
C12
0.22
C13
0.01
C14
0.01
R8
4.7K
C15
0.01
C16
100/6.3
R16
2.2K
C17
0.01
C18
0.01
R18
9.1K
R17
10K
R19
4.7K
D1
CN203
4 1 U. DRUM
EP
CH−2
EP
CH−1
SP
CH−1
SP
CH−2
AUDIO
CH−2
AUDIO
CH−1
F
G
H
I
J
3-67
3-68
L
M
N
O
P

3.34 PRE/REC CIRCUIT BOARDS

Note: Double edging indicates not used in this model.
Examples; Resistor, Capacitor, Transistor, DIODE





● Only chip parts

REF No.	LOCATION
TRANSISTOR	
Q1	C-8
Q2	C-7
Q201	D-2
Q202	C-2
Q203	D-3
Q204	C-1
Q205	C-6
Q206	C-6
DIODE	
D2	D-8
D203	B-5
D205	C-4

REF No.	LOCATION
RESISTOR	
R1	B-8
R2	B-8
R3	A-8
R4	A-8
R5	A-8
R6	A-8
R7	A-8
R8	C-8
R9	C-8
R12	C-8
R16	C-8
R17	C-8
R18	C-8
R19	B-7
R20	C-7
R21	D-7

REF No.	LOCATION
RESISTOR	
R201	D-1
R202	C-2
R203	C-1
R204	D-2
R205	C-2
R206	D-2
R207	C-2
R208	C-2
R209	D-2
R210	C-2
R211	C-2
R212	C-2
R213	C-2
R214	C-3
R215	C-6
R216	C-4

REF No.	LOCATION
RESISTOR	
R217	D-5
R218	D-5
R219	C-5
R220	C-6
R221	C-5
R222	D-4
R223	C-5
R224	C-6
R225	C-6
R226	B-4
R227	B-4
R228	B-5
R229	B-5
R230	C-4
R231	C-5
R233	D-3

REF No.	LOCATION
RESISTOR	
R234	C-3
R235	C-5
R237	C-4

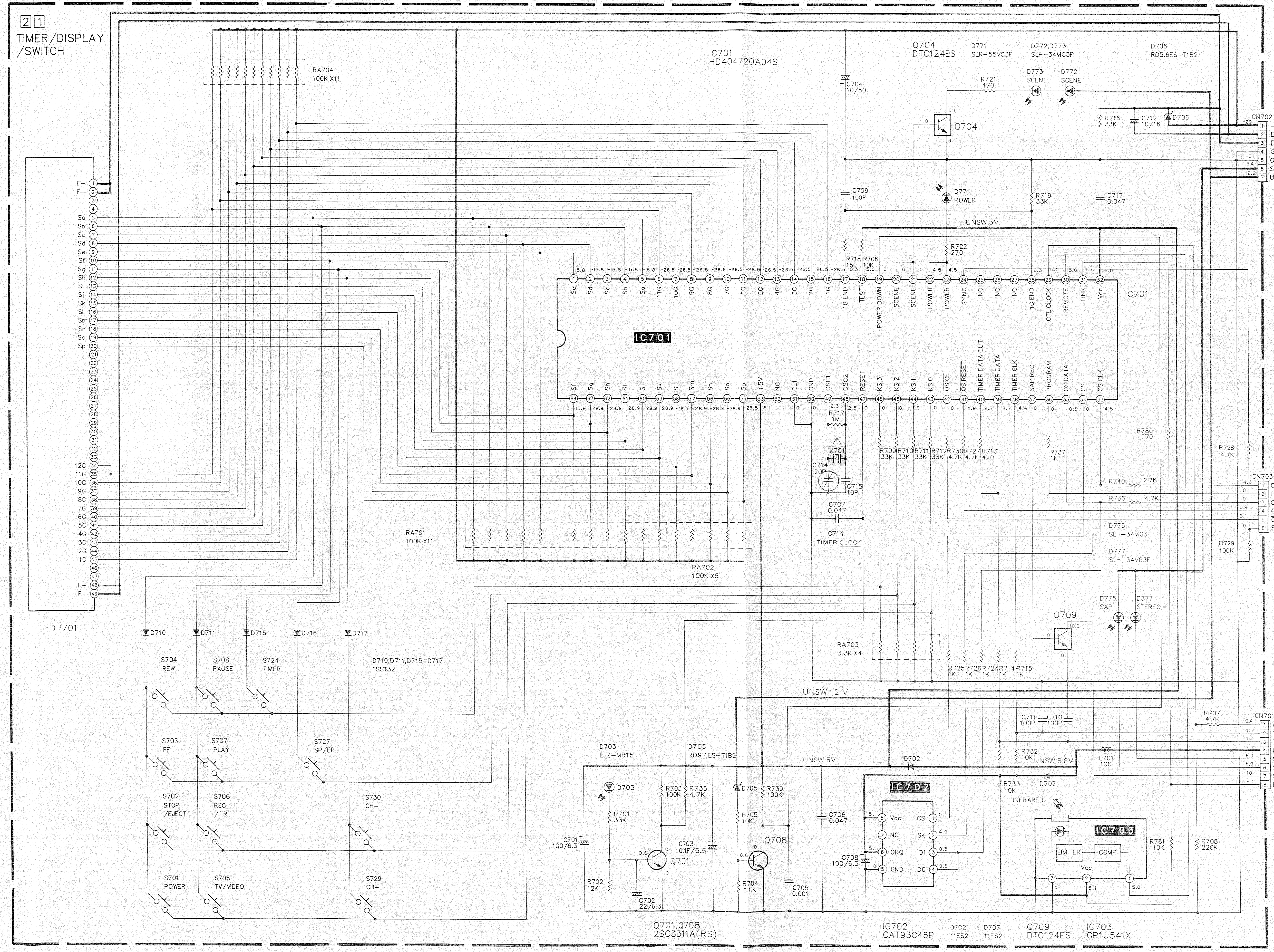
REF No.	LOCATION
CAPACITOR	
C1	B-8
C2	A-8
C3	A-8
C4	A-8
C5	A-8
C6	A-8
C7	A-7
C8	A-7
C10	B-7
C12	C-8
C13	C-8
C14	C-8
C15	C-8
C17	C-7
C18	C-7

REF No.	LOCATION
CAPACITOR	
C202	D-3
C203	D-1
C204	C-1
C205	C-1
C207	D-1
C208	C-2
C209	D-2
C210	D-2
C211	C-2
C212	C-4
C213	C-4
C214	C-5
C218	B-4
C219	B-4
C220	B-4
C221	B-4

REF No.	LOCATION
CAPACITOR	
C222	B-5
C223	B-5
C224	B-4
C225	B-4
C226	B-4
C227	B-5
C228	B-5
C229	B-5
C231	B-5
C232	B-5
C235	C-3
C241	C-5
C242	C-4
C243	D-3
C244	D-1

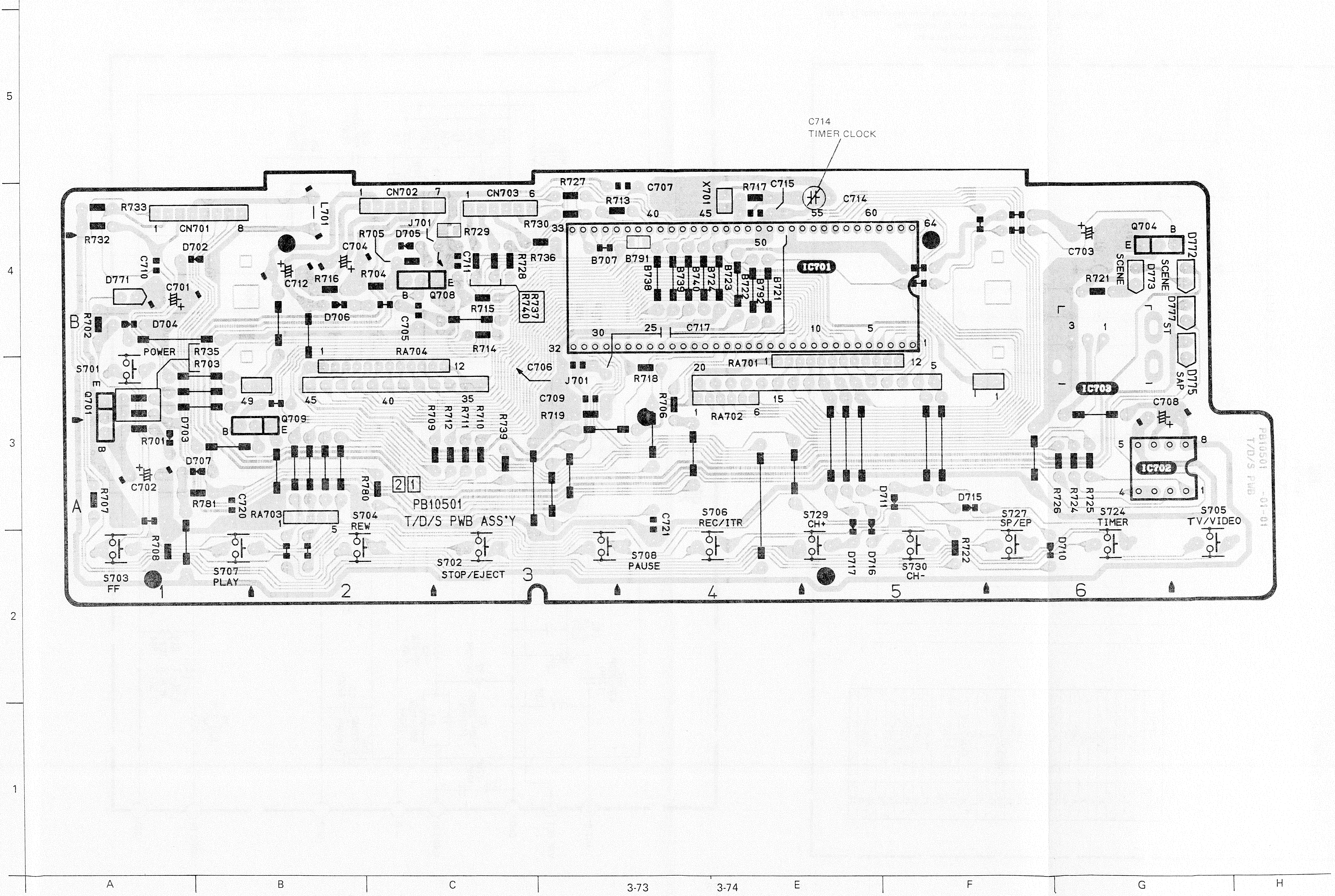
3.35 TIMER/DISPLAY/SWITCH SCHEMATIC DIAGRAM

NOTE: Voltage are DC-measured with a digital voltemtetr during stop and tuner mode.



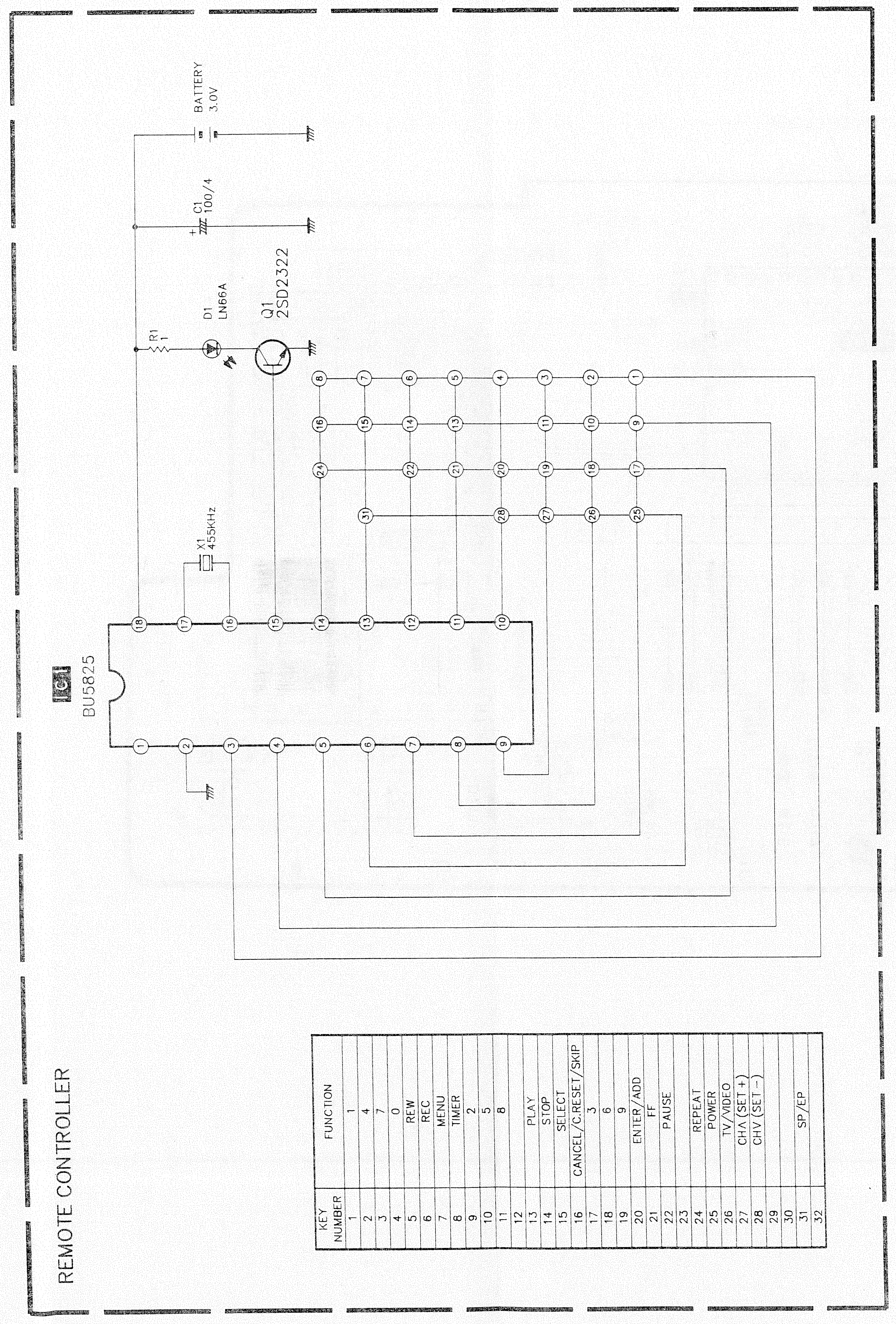
2 1
TIMER/DISPLAY /SWITCH
RA704 100K X11
IC701 HD404720A04S
Q704 DTC124ES
D771 SLR-55VC3F
D772,D773 SLH-34MC3F
D706 RD5.6ES-T1B2
C704 10/50
R721 470
D773 SCENE
D772 SCENE
Q704
R716 33K
C712 10/16
D706
CN702
From 0 1 SWITCHING REGULATOR CN1 (Page 3-28)
-28V
DC 4.8V(+)
DC 4.8V(−)
GND
GND
SWD 5V
UNSW 12V
C709 100P
D771 POWER
R719 33K
C717 0.047
UNSW 5V
R722 270
R718 150
R706 10K
IC701
Se Sd Sc Sb Sa 11G 10G 9G 8G 7G 6G 5G 4G 3G 2G 1G
1G END
TEST
POWER DOWN
SCENE
SCENE
POWER
POWER
SYNC
NC
NC
NC
1G END
CTL CLOCK
REMOTE
LINK
Vcc
IC701
Sf Sg Sh Si Sj Sk Sl Sm Sn So Sp +5V NC CL1 GND OSC1 OSC2 RESET KS3 KS2 KS1 KS0 OS CE OS RESET TIMER DATA OUT TIMER DATA TIMER CLK SAP REC PROGRAM OS DATA CS OS CLK
F− F− Sa Sb Sc Sd Se Sf Sg Sh Si Sj Sk Sl Sm Sn So Sp
12G 11G 10G 9G 8G 7G 6G 5G 4G 3G 2G 1G F+ F+
FDP701
R717 1M
X701
C714 20P
C715 10P
C707 0.047
C714 TIMER CLOCK
R709 33K
R710 33K
R711 33K
R712 33K
R730 4.7K
R727 4.7K
R713 470
R737 1K
R780 270
R728 4.7K
From/To 0 3 MAIN(REGULATOR) CN802 (Page 3-28)
CN703
R740 2.7K
R736 4.7K
OS CLK
PROGRAM
OS DATA
OS RESET
OS CE
SYNC
D775 SLH-34MC3F
D777 SLH-34VC3F
R729 100K
RA701 100K X11
RA702 100K X5
D775 SAP
D777 STEREO
Q709
RA703 3.3K X4
R725 1K
R726 1K
R724 1K
R714 1K
R715 1K
D710 D711 D715 D716 D717
S704 REW
S708 PAUSE
S724 TIMER
D710,D711,D715–D717 1SS132
UNSW 12 V
From/To 0 3 MAIN(REGULATOR) CN803 (Page 3-28)
CN701
R707 4.7K
C711 100P
C710 100P
COUNT PULSE
TIMER CLK
TIMER DATA
UNSW 5.8V
STEREO LED
SAP LED
SAP CTL
LINK
S703 FF
S707 PLAY
S727 SP/EP
D703 LTZ-MR15
D705 RD9.1ES-T1B2
UNSW 5V
D702
R732 10K
UNSW 5.8V
L701 100
S702 STOP /EJECT
S706 REC /ITR
S730 CH−
D703
R703 100K
R735 4.7K
D705
R739 100K
C706 0.047
IC702
Vcc CS NC SK ORG DI GND DO
R733 10K
D707
INFRARED
IC703
LIMITER COMP Vcc
R781 10K
R708 220K
R701 33K
R705 10K
Q708
C701 100/6.3
C703 0.1F/5.5
Q701
C708 100/6.3
S701 POWER
S705 TV/VIDEO
S729 CH+
R702 12K
C702 22/6.3
R704 6.8K
C705 0.001
Q701,Q708 2SC3311A(RS)
IC702 CAT93C46P
D702 11ES2
D707 11ES2
Q709 DTC124ES
IC703 GP1U541X
1 2 3 4 5 6
A B C D E F G H

3.36 TIMER/DISPLAY/SWITCH CIRCUIT BOARD


C714
TIMER CLOCK
R733
CN701
R732
L701
CN702
CN703
R727
C707
X701
R717
C715
C714
R713
R730
R705
D705
J701
R729
D702
C710
C704
C711
R728
R736
B707
B791
B738
B739
B740
B724
B723
B722
B792
B721
IC701
C703
Q704
D772
SCENE
D773
D777
ST
R721
D771
C701
C712
R716
R704
Q708
R737
R740
D706
C705
R715
R714
C717
D775
SAP
R702
D704
POWER
R735
R703
S701
Q701
RA704
C706
J701
R718
RA701
RA702
IC703
C708
Q709
R709
R712
R711
R710
R739
C709
R719
R706
IC702
R701
D703
D707
C702
R780
R707
R781
C720
RA703
PB10501
T/D/S PWB ASS'Y
S704
REW
C721
S706
REC/ITR
S729
CH+
D711
D715
S727
SP/EP
R726
R724
R725
S724
TIMER
S705
TV/VIDEO
PB10501 -01-01
T/D/S PWB
R708
S703
FF
S707
PLAY
S702
STOP/EJECT
S708
PAUSE
D717
D716
S730
CH-
R722
D710
A
B
1
2
3
4
5
6
A
B
C
E
F
G
H
1
2
3
4
5
6

3.37 REMOTE CONTROL SCHEMATIC DIAGRAM

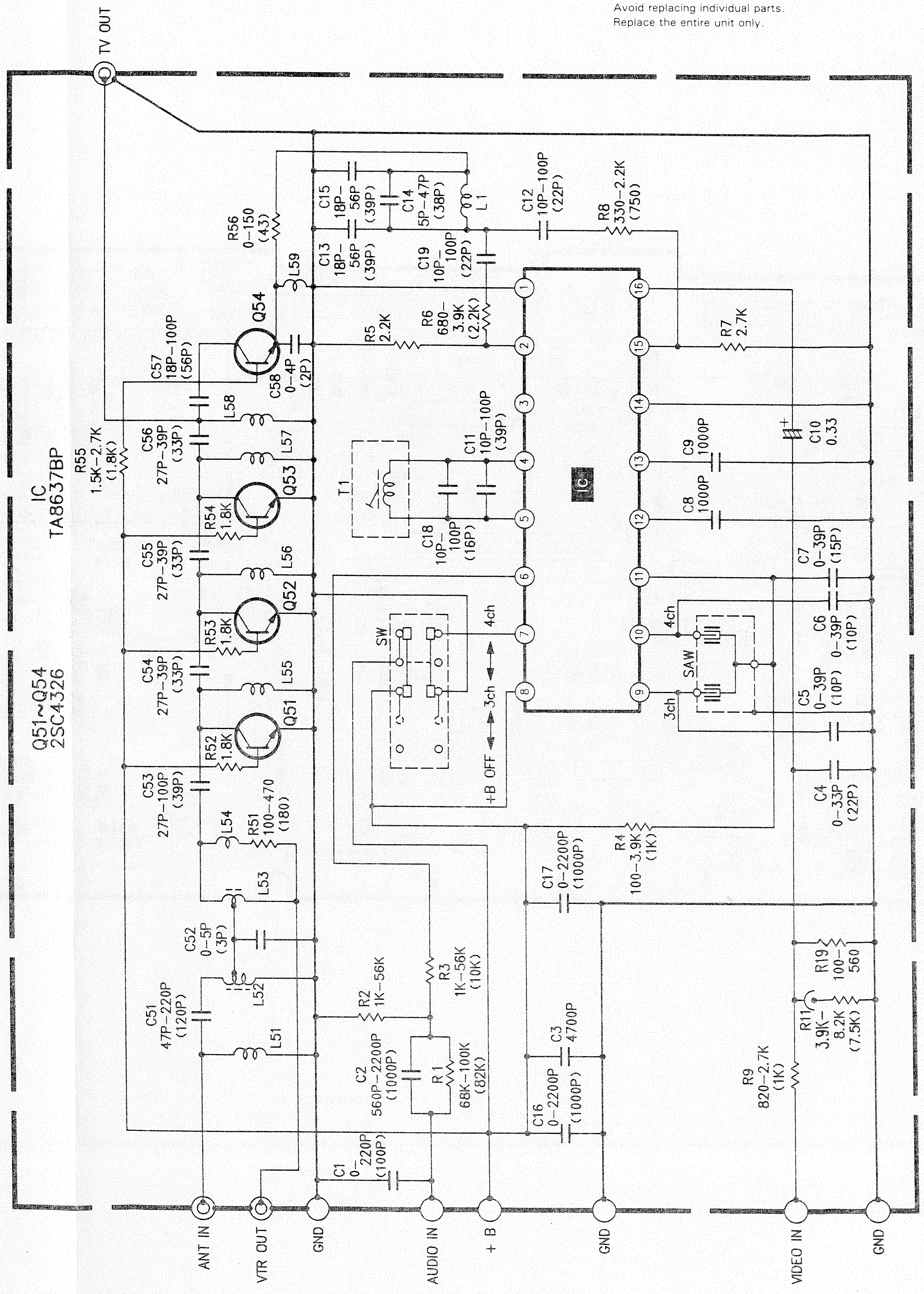
NOTES: 1. All parts shown in this schematic are critical for safety.
2. This schematic is only for reference.
Avoid replacing individual parts.
Replace the entire unit only.


BATTERY 3.0V
C1 100/4
R1 1
D1 LN66A
Q1 2SD2322
X1 455KHz
IC1
BU5825
REMOTE CONTROLLER

KEY NUMBER	FUNCTION
1	1
2	4
3	7
4	0
5	REW
6	REC
7	MENU
8	TIMER
9	2
10	5
11	8
12	
13	PLAY
14	STOP
15	SELECT
16	CANCEL/C.RESET/SKIP
17	3
18	6
19	9
20	ENTER/ADD
21	FF
22	PAUSE
23	
24	REPEAT
25	POWER
26	TV/VIDEO
27	CH∧ (SET +)
28	CH∨ (SET −)
29	
30	
31	SP/EP
32	

3.38 RF CONVERTER/SWITCH SCHEMATIC DIAGRAM

NOTES:
1. All parts shown in this schematic are critical for safety.
2. This schematic is only for reference.
Avoid replacing individual parts.
Replace the entire unit only.


TV OUT
IC TA8637BP
Q51~Q54 2SC4326
R56 0–150 (43)
L59
Q54
C57 18P–100P (56P)
C58 0–4P (2P)
L58
R55 1.5K–2.7K (1.8K)
C56 27P–39P (33P)
L57
Q53
R54 1.8K
C55 27P–39P (33P)
L56
Q52
R53 1.8K
C54 27P–39P (33P)
L55
Q51
R52 1.8K
C53 27P–100P (39P)
L54
R51 100–470 (180)
L53
C52 0–5P (3P)
C51 47P–220P (120P)
L52
L51
C15 18P–56P (39P)
C14 5P–47P (38P)
L1
C13 18P–56P (39P)
C19 10P–100P (22P)
C12 10P–100P (22P)
R8 330–2.2K (750)
R5 2.2K
R6 680–3.9K (2.2K)
R7 2.7K
C11 10P–100P (39P)
T1
C18 10P–100P (16P)
IC
C9 1000P
C8 1000P
C10 0.33
C7 0–39P (15P)
C6 0–39P (10P)
C5 0–39P (10P)
C4 0–33P (22P)
SW
4ch
3ch
+B OFF
SAW
4ch
3ch
C17 0–2200P (1000P)
R4 100–3.9K (1K)
R2 1K–56K
R3 1K–56K (10K)
C2 560P–2200P (1000P)
R1 68K–100K (82K)
C3 4700P
C16 0–2200P (1000P)
C1 0–220P (100P)
R19 100–560
R11 3.9K–8.2K (7.5K)
R9 820–2.7K (1K)
ANT IN
VTR OUT
GND
AUDIO IN
+B
GND
VIDEO IN
GND

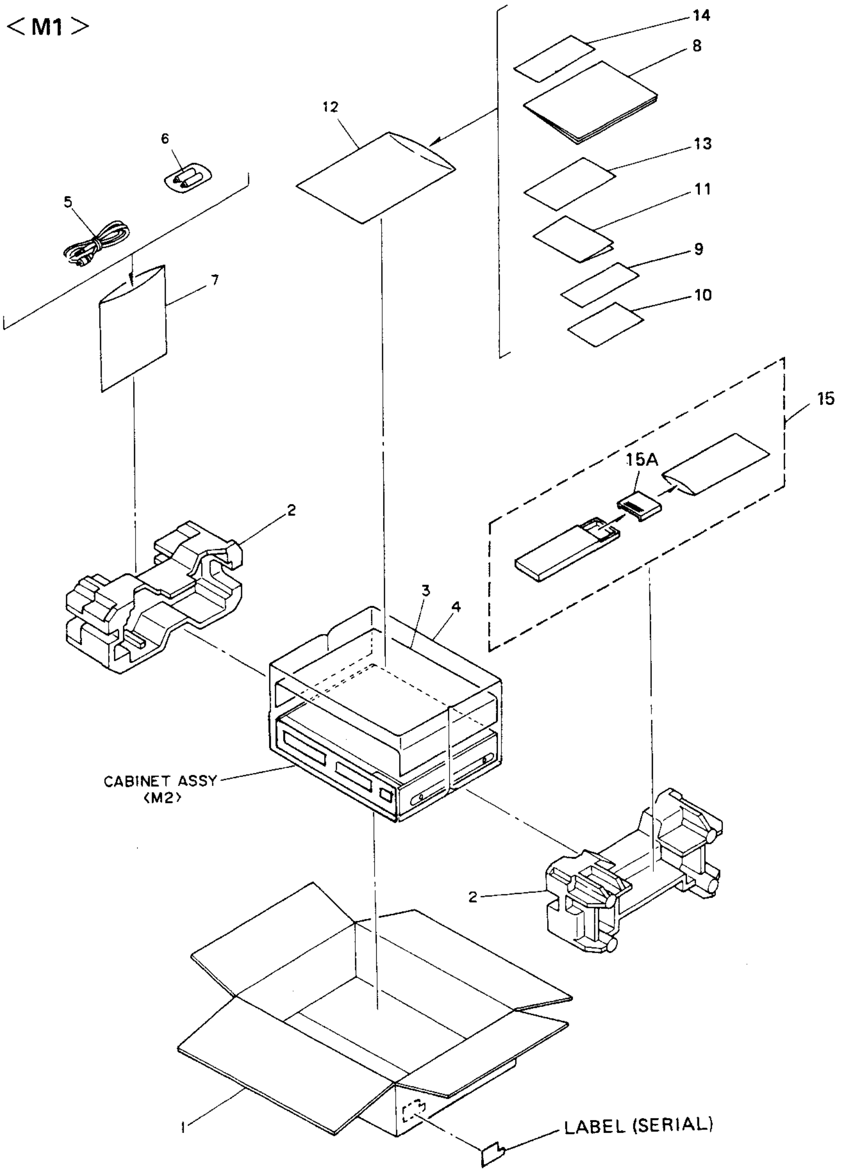
SECTION 4
EXPLODED VIEWS AND PARTS LIST

SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

NOTE:
[M] indicates mechanical symbol number.

4.1 PACKING ASSEMBLY < M1 >

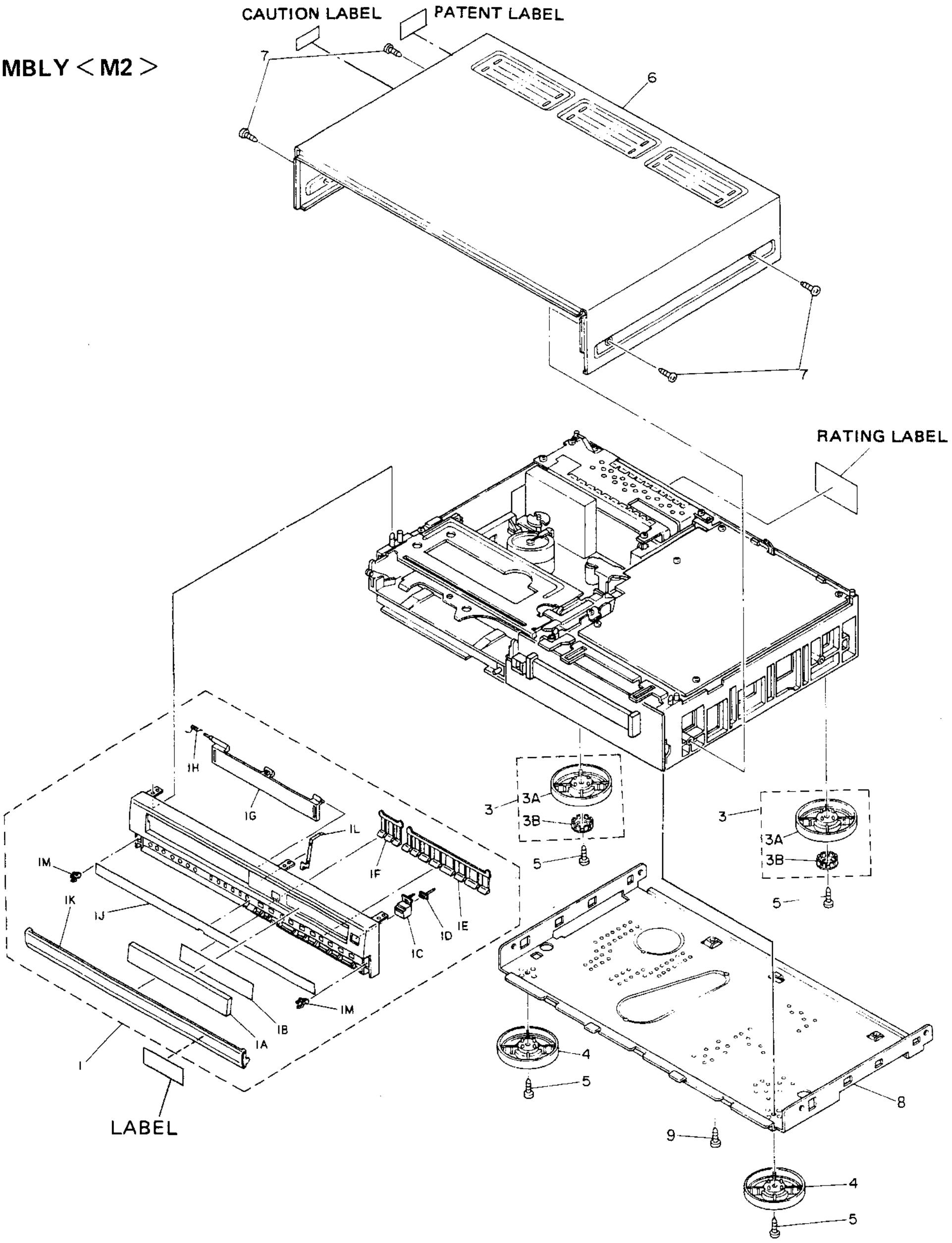


****

PACKING ASSEMBLY <M1>

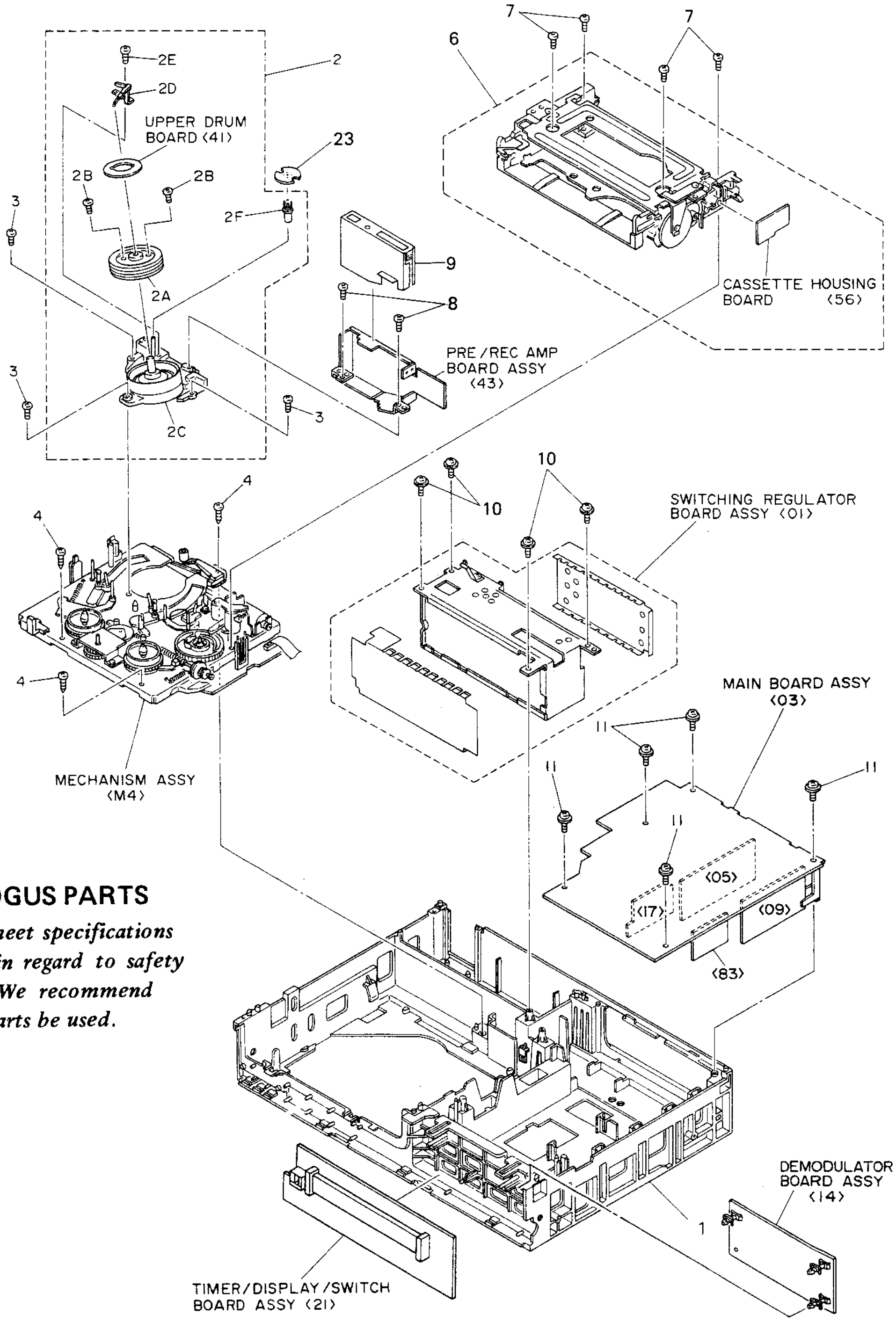
#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	1	PQ33821-10	PACKING CASE,D930U
	1	PQ33821-11	PACKING CASE,D910U
	1	PQ33821-12	PACKING CASE,D920U
	1	PQ33821-13	PACKING CASE,D910U(C)
	1	PQ33821-14	PACKING CASE,D920U(C)
	2	PQ33820A-1	CUSHION ASSY
	3	PQ41026-24	PROTECT SHEET
	4	PQM30021-59-11	POLY BAG
	5	PU59168-2	RF CABLE
		or PEAC0086	RF CABLE
		or PU59167-2	RF CABLE
	6	UM-4NJ2P	BATTERY,X2,SELLS
	7	QPGA020-02005	POLY BAG
⚠	8	PU30425-1222	INSTRUCTIONS,D930U
⚠	8	PU30425-1223	INSTRUCTIONS,D910U
⚠	8	PU30425-1225	INSTRUCTIONS,D920U
⚠	8	PU30425-1232	INSTRUCTIONS,D910U(C)
⚠	8	PU30425-1234	INSTRUCTIONS,D920U(C)
⚠	9	PU33941-3-3	SAFETY CAUTION
	10	PU36560	CONECTION SHEET
	11	TCU-3492	TAPE CATALOG
	12	QPGA025-03505	POLY BAG
	13	BT-20046E	TOLL FREE CARD,D910U/D920U/930U
	13	BT-20071A	INSTRUCTION GUIDE,D910U(C)/D920U(C)
	14	BT-20025K	WARRANTY CARD,D910U(C)/D920U(C)
	14	BT-20062B	WARRANTY CARD,D910U/D920U/D930U
⚠	15	PQ21206E	REMOTE CONTROLLER
	15A	PQ33885	CAP(BATTERY)

4.2 CABINET ASSEMBLY < M2 >



#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	********************************		
		CABINET ASSEMBLY <M2>	
	1	PQ11078G-4	FRONT PANEL ASSY,D930U
	1	PQ11078H-4	FRONT PANEL ASSY,D910U/U(C)
	1	PQ11078J	FRONT PANEL ASSY,D920U/U(C)
	1A	PQ33590-1-2	DISPLAY WINDOW
	1B	PQ33592-5	SHEET(DISPLAY),D910U/U(C)/D930U
	1B	PQ33592-6	SHEET(DISPLAY),D920U/U(C)
	1C	PQ33591-1-1	BUTTON(POWER),D930U
	1C	PQ33591-2-1	BUTTON(POWER),D910U/U(C)
	1C	PQ33591-4	BUTTON(POWER),D920U/U(C)
	1D	PQ44918-1-1	INDICATOR
	1E	PQ33593-1-2	BUTTON(OP 1),D930U
	1E	PQ33593-2-2	BUTTON(OP 1),D910U/U(C)
	1E	PQ33593-4	BUTTON(OP 1),D920U/U(C)
	1F	PQ33594-1-2	BUTTON(OP 2),D930U
	1F	PQ33594-2-2	BUTTON(OP 2),D910U/U(C)
	1F	PQ33594-4	BUTTON(OP 2),D920U/U(C)
	1G	PQ21142-1-3	CASSETTE HOUSING DOOR,D920U/U(C)/D930U
	1G	PQ21142-2-3	CASSETTE HOUSING DOOR,D910U/U(C)
	1H	PQ45165	TORSION SPRING
	1J	PQ21144-1-1	PLATE(PROGAM),D920U/U(C)/D930U
	1J	PQ21144-2-1	PLATE(PROGAM),D910U/U(C)
	1K	PQ21245G	DOOR ASSY,D930U
	1K	PQ21245H	DOOR ASSY,D910U/U(C)
	1K	PQ21245J	DOOR ASSY,D920U/U(C)
	1L	PQ45132	EARTH PLATE,D920U/U(C)
	1M	PU60109	CATCHER,X2
	3	PQ33012D	FOOT ASSY,X2,D930U
	3	PQ33012F	FOOT ASSY,X2,D920U/U(C)
	3	PQ33012B	FOOT ASSY,X2,D910U/U(C)
	3A	PQ33013-4	FOOT(1),X2,D930U
	3A	PQ33013-7	FOOT(1),X2,D920U/U(C)
	3A	PQ33013-2	FOOT(1),X2,D910U/U(C)
	3B	PQ33014	FOOT(2),X2
	4	PQ33013-4	FOOT(1),X2,D910U/U(C)
	4	PQ33013-7	FOOT(1),X2,D920U/U(C)
	5	SDSF3010Z	SCREW,X4,FOR FOOT
⚠	6	PQ10877-12	TOP COVER,D930U
⚠	6	PQ10877-14	TOP COVER,D920U/U(C)
⚠	6	PQ10877	TOP COVER,D910U/U(C)
	7	PQ43827	SPECIAL SCREW,X4,FOR TOP COVER
⚠	8	PQ10878	BOTTOM COVER
	9	SDSF3010Z	SCREW,FOR BOTTOM COVER

4.3 CHASSIS ASSEMBLY < M3 >


7
7
6
2E
2D
2
UPPER DRUM
BOARD <41>
23
2B
2B
3
2F
9
2A
8
CASSETTE HOUSING
BOARD <56>
PRE / REC AMP
BOARD ASSY
<43>
3
3
2C
10
4
4
10
SWITCHING REGULATOR
BOARD ASSY <01>
4
MAIN BOARD ASSY
<03>
11
11
11
MECHANISM ASSY
<M4>
11
11
<05>
<17>
<09>
<83>
DEMODULATOR
BOARD ASSY
<14>
1
TIMER / DISPLAY / SWITCH
BOARD ASSY <21>

BEWARE OF BOGUS PARTS

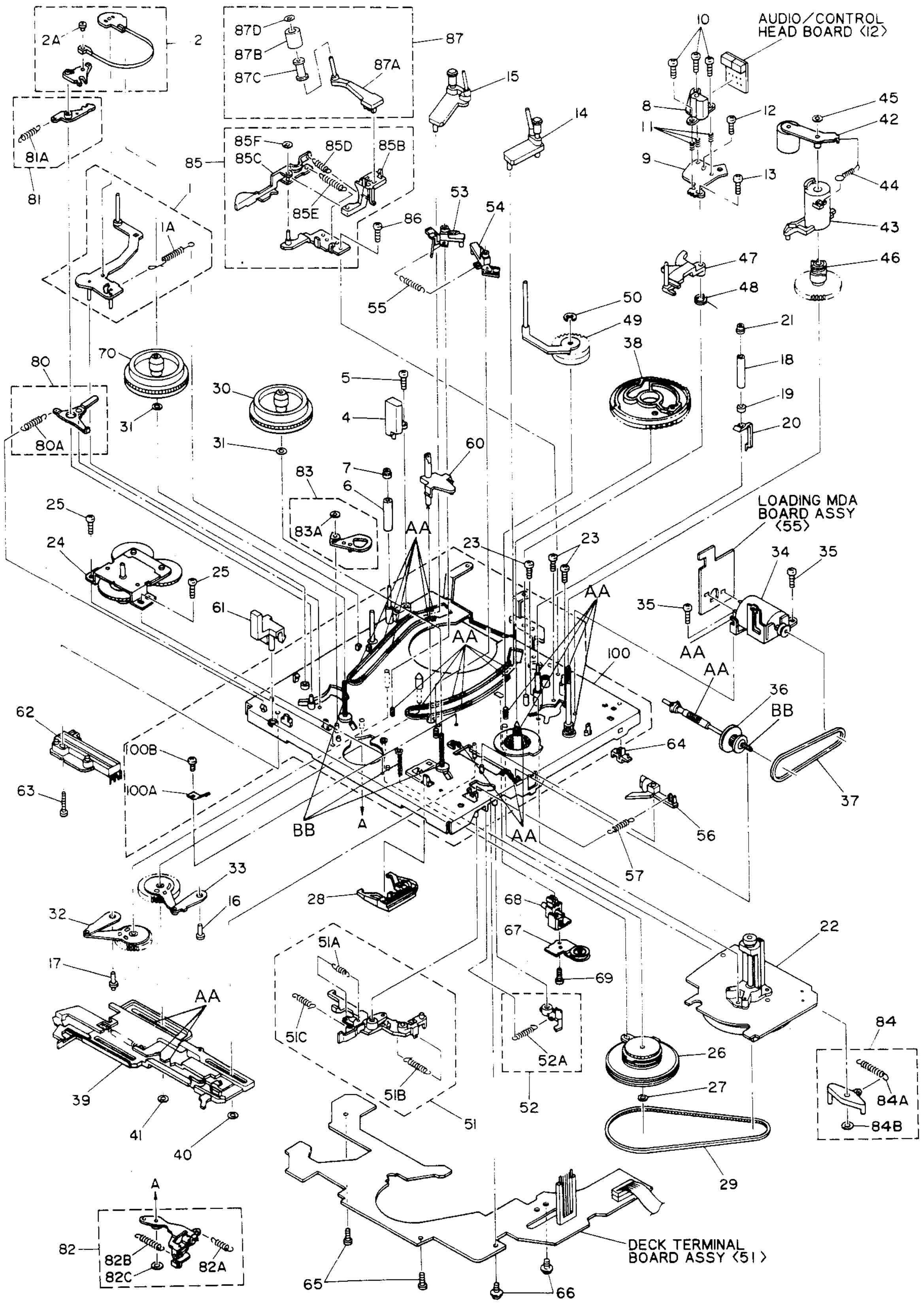
Parts that do not meet specifications may cause trouble in regard to safety and performance. We recommend that genuine JVC parts be used.

****

CHASSIS ASSEMBLY < M3 >

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
⚠ 1	PQ10876-2-15	BOTTOM CHASSIS
2	PDV2241A	DRUM ASSY
2A	PDM2001F	UPPER DRUM ASSY
2B	PDM4165A	DRUM SCREW ASSY,X2
2C	PDM2138S	LOWER DRUM MOTOR ASSY
2D	PDM4229A-1	BRUSH ASSY
2E	SPSG2606Z	SCREW
2F	PDM4226A	ROLLER ASSY
3	SPST2610Z	SCREW,X3,FOR DRUM ASSY
	or SDST2610Z	SCREW,X3
4	PQ43831	SPECIAL SCREW,X3 MAIN DECK
6	PUS29183D-2	CASSETTE HOUSINGASSY
7	SPST2608Z	SCREW,X4,FOR CASSETTE HOUSING
	or SDST2608Z	SCREW,X4
8	SDSG2606Z	SCREW,X2,FOR PRE/REC BOARD
9	PQ33877-1-1	SHIELD CASE(2),FOR PRE/REC
10	GPSF2610Z	SCREW,X4,FOR SW REG. BOARD
11	GPSF2610Z	SCREW,X5,FOR MAIN BOARD
23	PQ44230	INERTIA PLATE

4.4 MECHANISM ASSEMBLY < M4 >


2A
2
87D
87B
87C
87A
87
10
AUDIO/CONTROL HEAD BOARD <12>
15
14
8
12
45
42
11
9
13
44
43
81A
81
85
85F
85C
85D
85B
85E
86
53
54
1
1A
47
46
48
55
50
49
38
21
18
19
20
80
70
30
5
4
31
31
80A
60
7
6
83
83A
AA
25
24
25
23
23
LOADING MDA BOARD ASSY <55>
34
35
35
AA
61
100
AA
AA
36
BB
62
100B
100A
64
63
37
BB
A
AA
56
57
33
28
16
68
32
22
51A
67
17
69
AA
51C
84
52A
26
51B
27
84A
84B
39
41
40
51
52
29
A
82
82B
82C
82A
65
DECK TERMINAL BOARD ASSY <51>
66

Category	Part number	MARK
Grease	KANTO-G-31KAV	AA
Oil	COSMO-HV56	BB

NOTE: The section marked in AA and BB indicate lubrication and greasing areas.

****

MECHANISM ASSEMBLY <M4>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	1	PQ43497E-10	TENSION ARM ASSY
	1A	PQ43500	TENSION SPRING
	2	PQ44734A-5	TENSION BAND ASSY
	2A	PQ44737-2	ADJUST PIN
	4	PU60616	FULL ERASE HEAD
	5	SDSF2614Z	SCREW
	6	PQ43505-1-1	ROLLER
	7	PQ43506	GUIDE POLE CAP
	8	PU61002	AUDIO/CONTROL HEAD
	9	PQ43509	HEAD BASE
	10	PQ43687A	SPECIAL SCREW,X3
	11	PQM30002-192	COMPRESSION SPRING,X3
	12	SPSF2608M	SCREW
	13	SPSP2606Z	SCREW
	14	PU61103-2	POLE BASE(TU) ASSY
	15	PU61151-2-3	POLE BASE(SUP) ASSY
	16	PQ43524	STOPPER
	17	PQ43525	STOPPER 2
	18	PQ43526-1-3	TAPE GUIDE
	19	PQ43670-1-1	GUIDE FLANGE
	20	PQ43675	TAPE GUARD
	21	PQ43506	GUIDE POLE CAP
⚠	22	PU61003-1-2	CAPSTAN MOTOR
	23	SPSG2608Z	SCREW,X3
	24	PU61246	IDLER GEAR UNIT
	25	SPST2606Z	SCREW,X2
	26	PU61245-1-1	CLUTCH UNIT
	27	PQM30017-8	SLIT WASHER
	28	PQ43532B	CHANGE LEVER ASSY
	29	PU61006	TIMING BELT
	30	PU60858-1-4	REEL DISK (TAKE-UP)
	31	PQM30018-54	SPACER,X2
	32	PQ43537A	LOADING ARM ASSY (SUPLLY)
	33	PQ43542B	LOADING ARM ASSY (TAKE-UP)
	34	PQ43676B-5	MODE MOTOR ASSY
		or PQ43676C	MODE MOTOR ASSY
	35	SPST2606Z	SCREW,X2
	36	PQ43548A-3	WORM CLUTCH ASSY
	37	PQM30003-23	BELT
	38	PQ20822-2-4	CONTROL CAM
	39	PQ44581A-6	PLATE ASSY
	40	PQM30017-12	SLIT WASHER
	41	PQM30017-8	SLIT WASHER
	42	PQ43558A	PINCH ROLLER ARM ASSY
		or PQ43558B	PINCH ROLLER ARM ASSY
	43	PQ32415	PINCH ROLLER PRESS LEVER
	44	PQM30001-233	TENSION SPRING
	45	PQM30017-12	SLIT WASHER
	46	PQ32416-2	PINCH ROLLER CAM
	47	PQ43567A-8	GUIDE ARM ASSY
	48	PQ43569-1-3	TORSION SPRING
	49	PQ43570A-1	HALF LOADING GEAR ASSY
	50	PQM30017-12	SLIT WASHER
	51	PQ43575A-5	CANCEL LEVER ASSY
	51A	PQM30001-273	TENSION SPRING
	51B	PQM30001-237	TENSION SPRING
	51C	PQM30001-274	TENSION SPRING
	52	PQ43578A-2	HOOK ASSY
	52A	PQM30001-238	TENSION SPRING
	53	PQ43581C	MAIN BRAKE(SUPPLY) ASSY
	54	PQ43582B	MAIN BRAKE(TAKE-UP) ASSY
	55	PQM30001-251	TENSION SPRING
	56	PQ43583A	SUB BRAKE ASSY (TAKE-UP)
	57	PQM30001-298	TENSION SPRING
	60	PU60621-1-2	LED HOLDER,(INCL.D1)
	61	PU60624-1-4	REC SAFETY SWITCH,(S2)
	62	PU61247	SLIDE ENCORDER,(S3)
	63	SDSF2614Z	SCREW
	64	PQ32516	PWB HOLDER
	65	SDST2616Z	SCREW, X2
	66	GPSF2608Z	SCREW, X2
	67	PQ43912A-7	PULLEY ARM ASSY
	68	PQ33249	PULLEY BASE
	69	PQ45121A	SCREW
	70	PU60859-1-4	REEL DISK (SUPPLY)
	80	PQ44739A-1	LOCK LEVER 1 ASSY
	80A	PQM30001-278-46	TENSION SPRING
	81	PQ44741A-3	LOCK LEVER 2 ASSY
	81A	PQM30001-279-52	TENSION SPRING
	82	PQ44743A-5	IDLER LEVER ASSY
	82A	PQM30001-302	TENSION SPRING
	82B	PQM30001-301	TENSION SPRING
	82C	PQM30017-5	SLIT WASHER
	83	PQ44746A-2	OFF LEVER ASSY
	83A	PQM30017-5	SLIT WASHER
	84	PQ44585A-6	CAPSTAN BRAKE ASSY
	84A	PQM30001-282-52	SPRING
	84B	PQM30017-8	SLIT WASHER
	85	PQ44843A-1	ARM BASE ASSY
	85B	PQ33511-1-2	CLEANER ARM
	85C	PQ44841	CANCEL LEVER
	85D	PQM30001-299	TENSION SPRING
	85E	PQM30001-300	TENSION SPRING
	85F	PQM30017-5	SLIT WASHER
	86	SPST2606Z	SCREW
	87	PQ44840A	CLEANER BASE ASSY
	87A	PQ44844A	CLEANER BASE SUB ASSY
	87B	PQ44837	CLEANER
	87C	PQ44838	CLEANER HOLDER
	87D	PQM30017-38	SLIT WASHER
	100	PQ20994B-4	MAIN DECK ASSY
		or PQ21232B	MAIN DECK ASSY
	100A	PQ43849	EARTH PLATE
	100B	SPST2604Z	SCREW

SECTION 5
ELECTRICAL PARTS LIST

SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

****

SWITCHING REGULATOR BOARD ASSEMBLY <01>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWBA	PB20414P	SW.REG BOARD ASSEMBLY	
⚠	PHC1	PC817	PHOTO COUPLER	
⚠		or PS2501-1	PHOTO COUPLER	
	Q1	2SC4130	P.TRANSISTOR	
	Q2	2SC3616(MLK)	TRANSISTOR	
	Q3	2SA933S(S)	TRANSISTOR	
	Q4	2SC1740S(S)	TRANSISTOR	
⚠	Q5	2SC1740S	TRANSISTOR	
	Q6	2SB1425(EU)	TRANSISTOR	
	Q7	2SC1740S(Q)	TRANSISTOR	
	Q8	2SC1740S	TRANSISTOR	
	Q9	2SB1068(KU)	TRANSISTOR	
	Q12	2SA933S	TRANSISTOR	
		or 2SA1267(YG)-TJK	TRANSISTOR	
	D1	AU01	FR DIODE	
		or 1SR153-400-T2	FR DIODE	
	D2	AG01	FR DIODE	
	D4	AU01Z	FR DIODE	
		or ERA48-02	FR DIODE	
		or 1SR153-200-T2	FR DIODE	
	D7	RD15ES-T1B3	DIODE	
		or UZ15BSC	DIODE	
		or MTZ15CT-77	ZENER DIODE	
	D8	MTZV6.2A	ZENER DIODE	
		or RD6.2ES-T1B1	ZENER DIODE	
		or UZ6.2BSA	ZENER DIODE	
	D9	AU01Z	FR DIODE	
		or ERA48-02	FR DIODE	
		or 1SR153-200-T2	FR DIODE	
	D10	AU01Z	FR DIODE	
		or ERA48-02	FR DIODE	
		or 1SR153-200-T2	FR DIODE	
	D11	RL4Z-LFK2	FR DIODE	
	D12	AU01Z	FR DIODE	
		or ERA48-02	FR DIODE	
		or 1SR153-200-T2	FR DIODE	
	D13	RK14LF-B2	BARRIER DIODE	
		or 21DQ04	BARRIER DIODE	
	D14	RK14LF-B2	BARRIER DIODE	
		or 21DQ04	BARRIER DIODE	
	D15	RD30ES-T1B1	ZENER DIODE	
		or UZ30BSA	ZENER DIODE	
		or MTZ30AT-77	ZENER DIODE	
	D17	UZ5.1BSC	ZENER DIODE	
		or MTZV5.1C	ZENER DIODE	
		or RD5.1ES-T1B3	ZENER DIODE	
	D21	RD6.8ES-T1B1	ZENER DIODE	
		or UZ6.8BSA	ZENER DIODE	
		or MTZV6.8A	ZENER DIODE	
⚠	D22	RD15ES-T1B1	ZENER DIODE	
	D23	11EFS2	FR DIODE	
	D24	1SS133	DIODE	
		or MA165	DIODE	
	D25	11ES2	DIODE	
		or ERA15-02	DIODE	
	DS1	DF04M	DIODE STACK	
⚠	R1	QRC122K-225E	RESISTOR	2.2MΩ,1/2W
⚠	R2	QRM025K-1R0	MP RESISTOR	1Ω,2W
⚠	R3	QRG029J-683A	OMF RESISTOR	68KΩ,2W
	R4	QRD161J-683	RESISTOR	68KΩ,1/6W
	R5	QRD161J-683	RESISTOR	68KΩ,1/6W
	R6	QRD161J-473	RESISTOR	47KΩ,1/6W
⚠	R7	QRG019J-101A	OMF RESISTOR	100Ω,1W
	R8	QRD161J-102	RESISTOR	1KΩ,1/6W
	R9	QRD161J-122	RESISTOR	1.2KΩ,1/6W
	R10	QRX014J-R27	MF RESISTOR	0.27Ω,1W
	R11	QRD161J-471	RESISTOR	470Ω,1/6W
	R14	QRD161J-471	RESISTOR	470Ω,1/6W
	R15	QRD161J-681	RESISTOR	680Ω,1/6W
	R16	QRV144F-4750AY	CMF RESISTOR	475Ω,1/4W
	R17	QRV144F-4320AY	CMF RESISTOR	432Ω,1/4W
	R18	QRD161J-472	RESISTOR	4.7KΩ,1/6W
⚠	R20	QRZ0077-101X	FUSIBLE RESISTOR	100Ω,1/4W
⚠	R21	QRZ0077-470X	FUSIBLE RESISTOR	47Ω,1/4W
	R22	QRD161J-102	RESISTOR	1KΩ,1/6W
	R23	QRD161J-103	RESISTOR	10KΩ,1/6W
	R24	QRD161J-221	RESISTOR	220Ω,1/6W
	R25	QRD161J-471	RESISTOR	470Ω,1/6W
	R26	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R27	QRD161J-102	RESISTOR	1KΩ,1/6W
	R28	QVZ3518-471A	V RESISTOR,SWD 5V	470Ω
		or QVZ3523-471A	V RESISTOR	470Ω
	R29	QRD161J-103	RESISTOR	10KΩ,1/6W
	R30	QRD161J-103	RESISTOR	10KΩ,1/6W
	R34	QRD161J-822	RESISTOR	8.2KΩ,1/6W
	R35	QRD161J-102	RESISTOR	1KΩ,1/6W
⚠	C1	QFZ9022-333	MM CAPACITOR	0.033μF,25

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
⚠	C2	QFZ9022-333	MM CAPACITOR	0.033μF,250
⚠	C3	QCZ9052-102	CAPACITOR	0.001μF
⚠	C4	QCZ9052-102	CAPACITOR	0.001μF
⚠	C5	QCZ9052-222	CAPACITOR	0.0022μF
⚠	C6	PU61024-107	E CAPACITOR	100μF,250
	C7	QCY53AK-472	CAPACITOR	0.0047μF,1KV
		or QCZ0212-472	CAPACITOR	0.0047μF,1KV
	C9	QED61HM-475	E CAPACITOR	4.7μF,50V
	C10	QFV41HJ-334	TF CAPACITOR	0.33μF,50V
		or QFV11HJ-334	TF CAPACITOR	0.33μF,50V
	C11	QFLA1HJ-472Z	M CAPACITOR	0.0047μF,50V
		or QFN31HJ-472	M CAPACITOR	0.0047μF,50V
	C12	QFN31HJ-103	M CAPACITOR	0.01μF,50V
		or QFLA1HJ-103Z	M CAPACITOR	0.01μF,50V
	C14	QFV41HJ-104	TF CAPACITOR	0.1μF,50V
		or QFV11HJ-104	MM CAPACITOR	0.1μF,50V
	C15	QFN31HJ-103	M CAPACITOR	0.01μF,50V
		or QFLA1HJ-103Z	M CAPACITOR	0.01μF,50V
	C17	QETC1JM-476	E CAPACITOR	47μF,63V
	C18	QETC1HM-476	E CAPACITOR	47μF,50V
⚠	C19	QEZ0137-687	E CAPACITOR	680μF,16V
⚠		or QEZ0105-687	E CAPACITOR	680μF,16V
⚠	C20	QEZ0136-128	E CAPACITOR	1200μF,10V
⚠		or QEZ0106-128	E CAPACITOR	1200μF,10V
	C21	QETC1HM-226	E CAPACITOR	22μF,50V
	C22	QETC1JM-226	E CAPACITOR	22μF,63V
⚠	C23	QEMB1CM-128	E CAPACITOR	1200μF,16V
⚠	C24	QETB1AM-108	E CAPACITOR	1000μF,10V
	C25	QETC1AM-107	E CAPACITOR	100μF,10V
	C26	QFN31HJ-103	M CAPACITOR	0.01μF,50V
		or QFLA1HJ-103Z	M CAPACITOR	0.01μF,50V
	C28	QETC0JM-107	E CAPACITOR	100μF,6.3V
	C29	QETC1CM-107	E CAPACITOR	100μF,16V
	C30	QETC0JM-107	E CAPACITOR	100μF,6.3V
	C31	QETC1CM-107	E CAPACITOR	100μF,16V
	C32	QETC1CM-107	E CAPACITOR	100μF,16V
	C33	QEZ0156-127Z	E CAPACITOR	120μF,6.3V
		or QEZ0135-127Z	E CAPACITOR	120μF,6.3V
	C34	QETC0JM-107	E CAPACITOR	100μF,6.3V
	C38	QEZ0138-277	E CAPACITOR	270μF,25V
		or QEZ0125-277	E CAPACITOR	270μF,25V
	C39	QETC1EM-227	E CAPACITOR	220μF,25V
	C40	QETC1AM-226	E CAPACITOR	22μF,10V
	L1	PU60943-330K	COIL	33μH
		or PELN0270-330K	COIL	
	L2	PU60943-330K	COIL	33μH
		or PELN0270-330K	COIL	
	L3	PU48530-330K	COIL	33μH
	L4	PU60943-330K	COIL	33μH
		or PELN0270-330K	COIL	
⚠	POC1	QMP14B0-200TG	POWER CORD	
⚠		or QMP14B0-200TGJ5	POWER CORD	
⚠	T1	PELN0408-02	SW TRANS	

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
⚠		or PELN0426-02	SW TRANS	
	BKT1	PQ20893-1-2	BRACKET(SW.REG)	
⚠	BKT2	PQ33007-2	BRACKET(SW.REG)	
⚠	CL1	PU57505	FUSE CLIP,X2	
	ETH1	PQ43872	EARTH PLATE	
⚠	ETH2	PQ44613	EARTH PLATE	
⚠	HD1	QHS3771-108	STRAIN RELIEF	
⚠	HS1	PQ44026-1-1	HEAT SINK	
⚠	LF1	PU59707	LINE FILTER	
⚠		or PELN0255	LINE FILTER	
	SCW1	SDST2605Z	SCREW,X3	
	SCW2	SDSG3008Z	SCREW,FOR HEAT SINK	
	SCW3	SDSG3006Z	SCREW,FOR EARTH PLATE 2	
	SLD1	PQ33004	SHIELD CASE(1)	
	SLD2	PQ33005	SHIELD CASE(2)	
	SLD3	PQ33006	SHIELD CASE(3)	
	SPC1	PQM30029-141	SPACER	
	TP1	PU55774	TEST PIN,X3	
	CN1	PU60910-107	WIRE TRAP	
	CN2	PU60910-111	CAP HOUSING	
⚠	CP1	ICP-N10	CIRCUIT PROTECTOR	
⚠	CP2	ICP-N20	CIRCUIT PROTECTOR	
⚠	F1	QMF51N2-R70J1	FUSE	0.7A,AC250V

****

MAIN BOARD ASSEMBLY <03>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWBA	PB10501A1-01	MAIN BOARD ASSY	
⚠	RF1	PERF0064	RF CONVERTER	
	ETH1	PQ43754-1-2	EARTH PLATE	
	JA1	PU60612	PIN JACK(EARPHONE)	
		or PU61012	PIN JACK(MINI)	
	JA2	PU61149-3	PIN JACK	
	JA3	PU61150	PIN JACK(SW)	
	JA4	PU61149	PIN JACK	
	JA5	PU61149	PIN JACK	
	JA6	PU60612	PIN JACK(EARPHONE)	
		or PU61012	PIN JACK(MINI)	
	SCW1	SDST2605Z	SCREW	
	SPC1	PU60010-2	SPACER	
	SPC2	PQM30018-60	SPACER	
⚠	TB1	PQ10888-14	TERMINAL BOARD	
	TP1	PEMC0726-030C	TEST PIN,X21	
		or PEMC0727	TEST PIN	

- TUNER/IF SECTION -

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	IC1	M51365SP	IC	
	Q2	2SC3354	TRANSISTOR	
	Q3	2SC1317(RS)	TRANSISTOR	
	Q4	2SA933S(S)	TRANSISTOR	
	Q5	2SA1532(C)	TRANSISTOR	
	Q6	2SC3354	TRANSISTOR	
	Q11	2SC4081(S)	TRANSISTOR	
	Q12	XN2401	TRANSISTOR	
	Q14	XN1501	TRANSISTOR	
	Q15	DTA123EU	TRANSISTOR	
	D1	MTZ10B	ZENER DIODE	
	R1	QRSA08J-750YN	RESISTOR	75Ω,1/10W
	R3	QRD161J-181	RESISTOR	180Ω,1/6W
	R4	QRSA08J-562YN	RESISTOR	5.6KΩ,1/10W
	R5	QRSA08J-220YN	RESISTOR	22Ω,1/10W
	R6	QRSA08J-122YN	RESISTOR	1.2KΩ,1/10W
	R7	QRSA08J-391YN	RESISTOR	390Ω,1/10W
	R8	QRSA08J-101YN	RESISTOR	100Ω,1/10W
	R9	QRSA08J-330YN	RESISTOR	33Ω,1/10W
	R14	QRSA08J-101YN	RESISTOR	100Ω,1/10W
	R15	QRSA08J-272YN	RESISTOR	2.7KΩ,1/10W
	R16	QRSA08J-182YN	RESISTOR	1.8KΩ,1/10W
	R17	QRSA08J-562YN	RESISTOR	5.6KΩ,1/10W
	R18	QRSA08J-332YN	RESISTOR	3.3KΩ,1/10W
	R19	QRSA08J-562YN	RESISTOR	5.6KΩ,1/10W
	R20	QRSA08J-392YN	RESISTOR	3.9KΩ,1/10W
	R21	QVZ3523-102AZ	V RESISTOR,RF AGC	1KΩ
	R22	QRSA08J-824YN	RESISTOR	820KΩ,1/10W
	R23	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
	R24	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R25	QRSA08J-821YN	RESISTOR	820Ω,1/10W
	R26	QRSA08J-104YN	RESISTOR	100KΩ,1/10W
	R28	QRSA08J-184YN	RESISTOR	180KΩ,1/10W
	R31	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
	R33	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
	R34	QRSA08J-471YN	RESISTOR	470Ω,1/10W
	R35	QRSA08J-561YN	RESISTOR	560Ω,1/10W
	R36	QRSA08J-561YN	RESISTOR	560Ω,1/10W
	R37	QRSA08J-301YN	RESISTOR	300Ω,1/10W
	R38	QRSA08J-272YN	RESISTOR	2.7KΩ,1/10W
	R39	QRSA08J-152YN	RESISTOR	1.5KΩ,1/10W
	R40	QRD161J-222	RESISTOR	2.2KΩ,1/6W
	R45	QRSA08J-823YN	RESISTOR	82KΩ,1/10W
	R47	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
	R51	QRSA08J-152YN	RESISTOR	1.5KΩ,1/10W
	R57	QRD161J-562	RESISTOR	5.6KΩ,1/6W
	R61	QRD161J-181	RESISTOR	180Ω,1/6W
	R62	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R63	QRSA08J-152YN	RESISTOR	1.5KΩ,1/10W
	R64	QRSA08J-152YN	RESISTOR	1.5KΩ,1/10W
	R66	QRSA08J-391YN	RESISTOR	390Ω,1/10W
	R67	QRSA08J-101YN	RESISTOR	100Ω,1/10W
	R68	QRSA08J-330YN	RESISTOR	33Ω,1/10W
	R72	QRSA08J-331YN	RESISTOR	330Ω,1/10W
	R73	QRSA08J-104YN	RESISTOR	100KΩ,1/10W
	R74	QRSA08J-223YN	RESISTOR	22KΩ,1/10W
	R75	QRSA08J-682YN	RESISTOR	6.8KΩ,1/10W
	R76	QRSA08J-682YN	RESISTOR	6.8KΩ,1/10W
	R77	QRSA08J-181YN	RESISTOR	180Ω,1/10W
	R78	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R80	QRSA08J-182YN	RESISTOR	1.8KΩ,1/10W
	R81	QRSA08J-154YN	RESISTOR	150KΩ,1/10W
	R82	QRSA08J-563YN	RESISTOR	56KΩ,1/10W
	R83	QRSA08J-184YN	RESISTOR	180KΩ,1/10W
	R84	QRSA08J-4R7YN	RESISTOR	4.7Ω,1/10W
	R85	QRSA08J-123YN	RESISTOR	12KΩ,1/10W
	R86	QRSA08J-822YN	RESISTOR	8.2KΩ,1/10W

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	C5	QCYA1HK-102	CAPACITOR	0.001μF,50V
	C6	QCYA1HK-102	CAPACITOR	0.001μF,50V
	C7	QCYA1HK-102	CAPACITOR	0.001μF,50V
	C8	QCYA1HK-102	CAPACITOR	0.001μF,50V
	C10	QETC1CM-336	E CAPACITOR	33μF,16V
	C13	QCYA1HK-222	CAPACITOR	0.0022μF,50V
	C14	PU57601-474ME	E CAPACITOR	0.47μF,25V
	C15	QETC1CM-336	E CAPACITOR	33μF,16V
	C16	QCYA1HK-222	CAPACITOR	0.0022μF,50V
	C17	QCYA1HK-473	CAPACITOR	0.047μF,50V
	C18	QFV71HJ-104	TF CAPACITOR	0.1μF,50V
	C19	QCYA1HK-102	CAPACITOR	0.001μF,50V
	C20	QCYA1HK-222	CAPACITOR	0.0022μF,50V
	C21	QCTA1CH-101	CAPACITOR	100PF,16V
	C24	QETC1HM-105	E CAPACITOR	1μF,50V
	C25	QCYA1HK-102	CAPACITOR	0.001μF,50V
	C26	QFN31HJ-123	M CAPACITOR	0.012μF,50V
	C27	QETC1HM-474	E CAPACITOR	0.47μF,50V
	C28	QCTA1CH-100	CAPACITOR	10PF,16V
	C29	QCTA1CH-150	CAPACITOR	15PF,16V
	C30	QCYA1HK-223	CAPACITOR	0.022μF,50V
	C31	QETC1CM-476	E CAPACITOR	47μF,16V
	C32	QETC1CM-336	E CAPACITOR	33μF,16V
	C41	QCYA1HK-102	CAPACITOR	0.001μF,50V
	C42	QCYA1HK-102	CAPACITOR	0.001μF,50V
	C45	QCYA1HK-102	CAPACITOR	0.001μF,50V
	C46	QCYA1HK-102	CAPACITOR	0.001μF,50V
	C48	QCYA1HK-102	CAPACITOR	0.001μF,50V
	C51	QETC1HM-335	E CAPACITOR	3.3μF,50V
	C53	QCYA1HK-332	CAPACITOR	0.0033μF,50V
	C54	QETC1CM-476	E CAPACITOR	47μF,16V
	L1	PU60025-1R3	COIL	1.3μH
	L2	PU60025-1R1	COIL	1.1μH
	L3	PU60025-R33S	COIL	0.33μH
	L4	PU59152-180J	COIL	18μH
	L5	PU59152-560J	COIL	56μH
	L6	PU59152-470J	COIL	47μH
	CF1	PU60774	CERAMIC FILTER	
	CF3	PU61039	CERAMIC FILTER	
	SAW1	PEVB0336	SAW FILTER	
	SAW2	PU60765-4	SAW FILTER	
	T2	PU60027-01-01S	IF.TRANSFORMER,VCO	
	T3	PU60028S	IF.TRANSFORMER,AFC	
	T4	PU60104S	IF.TRANSFORMER,SOUND DET	
	T8	PU60264S	COIL	

- TUNER/CTL SECTION -

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
⚠	TNR1	PERF0078	TUNER	
	Q101	2SD1450S,T	TRANSISTOR	
	D101	E-452-2-T2	DIODE	
	D102	HZ30-2L-T2	ZENER DIODE	
	R102	QRSA08J-123YN	RESISTOR	12KΩ,1/10W
	R105	QRSA08J-104YN	RESISTOR	100KΩ,1/10W
	R113	QRSA08J-271YN	RESISTOR	270Ω,1/10W
	R118	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	C102	QETC1HM-106	E CAPACITOR	10μF,50V
	C105	QETC1HM-105	E CAPACITOR	1μF,50V
	C109	QETC1CM-336	E CAPACITOR	33μF,16V
	C110	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C111	QETC1CM-336	E CAPACITOR	33μF,16V
	C131	QETC1CM-336	E CAPACITOR	33μF,16V
	C132	QCYA1HK-222	CAPACITOR	0.0022μF,50V
	WR1	PW30402-BB06M	COAXIAL ASSY	

- VIDEO SECTION -

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	Q201	2SC4081(QRS)	TRANSISTOR	
	Q202	2SC4081(QRS)	TRANSISTOR	
	Q203	2SC4081(QRS)	TRANSISTOR	
	Q204	2SA1576(QRS)	TRANSISTOR	
	Q205	2SA1577(Q)	TRANSISTOR	
	Q206	2SA1576(QRS)	TRANSISTOR	
	Q210	2SA1576(QRS)	TRANSISTOR	
	Q211	DTC124EU	TRANSISTOR	
	D201	DA115	DIODE	
		or DAN202U	DIODE	
	D202	DA115	DIODE	
		or DAN202U	DIODE	
	D203	DA115	DIODE	
		or DAN202U	DIODE	
	D205	1SS133	DIODE	
		or MA165	DIODE	
	D206	1SS133	DIODE	
		or MA165	DIODE	
	D208	1SS133	DIODE	
		or MA165	DIODE	
	D209	1SS133	DIODE	
		or MA165	DIODE	
	R201	QRSA08J-471YN	RESISTOR	470Ω,1/10W
	R202	QRSA08J-302YN	RESISTOR	3KΩ,1/10W
	R203	QRSA08J-122YN	RESISTOR	1.2KΩ,1/10W
	R204	QRSA08J-182YN	RESISTOR	1.8KΩ,1/10W
	R205	QRSA08J-562YN	RESISTOR	5.6KΩ,1/10W
	R206	QRD161J-222	RESISTOR	2.2KΩ,1/6W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R207	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R208	QVZ3518-102AZ	V RESISTOR,SP REC COLOR	1KΩ
R209	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R210	QRSA08J-682YN	RESISTOR	6.8KΩ,1/10W
R211	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R212	QRSA08J-123YN	RESISTOR	12KΩ,1/10W
R213	QRSA08J-273YN	RESISTOR	27KΩ,1/10W
R214	QRSA08J-332YN	RESISTOR	3.3KΩ,1/10W
R215	QVZ3518-102AZ	V RESISTOR,EP REC COLOR	1KΩ
R216	QRSA08J-152YN	RESISTOR	1.5KΩ,1/10W
R217	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
R218	QRSA08J-681YN	RESISTOR	680Ω,1/10W
R219	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R223	QRD123J-391SX	RESISTOR	390Ω,1/2W
R224	QRSA08J-123YN	RESISTOR	12KΩ,1/10W
R225	QRSA08J-271YN	RESISTOR	270Ω,1/10W
R226	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R227	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R231	QRSA08J-750YN	RESISTOR	75Ω,1/10W
R232	QRSA08J-750YN	RESISTOR	75Ω,1/10W
R234	QRSA08J-561YN	RESISTOR	560Ω,1/10W
R235	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R239	QRSA08J-104YN	RESISTOR	100KΩ,1/10W
C201	QCFA1HZ-102	CAPACITOR	0.001μF,50V
C202	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C203	QETC0JM-476	E CAPACITOR	47μF,6.3V
C204	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C205	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C206	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C207	QCFA1HZ-102	CAPACITOR	0.001μF,50V
C208	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C209	QETC0JM-108	E CAPACITOR	1000μF,6.3V
C210	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C211	QETC1CM-476	E CAPACITOR	47μF,16V
C213	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C215	QEK60JM-476	E CAPACITOR	47μF,6.3V
C227	QCYA1HK-222	CAPACITOR	0.0022μF,50V
L201	PU48530-101K	COIL	100μH
L202	PU48530-101K	COIL	100μH
CN201	PU59555-6	CONNECTOR	
CN202	PU59555-10	CONNECTOR	

– AUDIO SECTION –

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
IC301	BA7765AS	IC	
	or XRA7765AS	IC	
Q301	2SC4081(RS)	TRANSISTOR	
Q302	DTA124EU	TRANSISTOR	
Q303	DTA114EU	TRANSISTOR	
Q304	DTA114EU	TRANSISTOR	
Q311	2SA1577(RS)	TRANSISTOR	
Q312	DTC114EU	TRANSISTOR	
D301	DA115	DIODE	
	or DAN202U	DIODE	
D302	1SS133	DIODE	
	or MA165	DIODE	
D303	1SS133	DIODE	
	or MA165	DIODE	
D304	1SS133	DIODE	
	or MA165	DIODE	
R301	QRSA08J-223YN	RESISTOR	22KΩ,1/10W
R302	QRSA08J-333YN	RESISTOR	33KΩ,1/10W
R303	QRSA08J-201YN	RESISTOR	200Ω,1/10W
R304	QRSA08J-274YN	RESISTOR	270KΩ,1/10W
R305	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R306	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
R307	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
R309	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
R311	QRSA08J-682YN	RESISTOR	6.8KΩ,1/10W
R312	QRSA08J-333YN	RESISTOR	33KΩ,1/10W
R313	QRSA08J-475YN	RESISTOR	4.7MΩ,1/10W
R314	QRSA08J-475YN	RESISTOR	4.7MΩ,1/10W
R315	QRSA08J-475YN	RESISTOR	4.7MΩ,1/10W
R316	QRSA08J-123YN	RESISTOR	12KΩ,1/10W
R317	QRSA08J-333YN	RESISTOR	33KΩ,1/10W
R319	QRSA08J-100YN	RESISTOR	10Ω,1/10W
R320	QVZ3518-473A	V RESISTOR,BIAS ADJ	47KΩ
R321	QRSA08J-153YN	RESISTOR	15KΩ,1/10W
R322	QRSA08J-6R8YN	RESISTOR	6.8Ω,1/10W
R324	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R325	QRSA08J-273YN	RESISTOR	27KΩ,1/10W
R326	QRSA08J-181YN	RESISTOR	180Ω,1/10W
R327	QRSA08J-681YN	RESISTOR	680Ω,1/10W
R328	QRSA08J-392YN	RESISTOR	3.9KΩ,1/10W
R329	QRSA08J-362YN	RESISTOR	3.6KΩ,1/10W
R330	QRSA08J-243YN	RESISTOR	24KΩ,1/10W
R331	QRSA08J-153YN	RESISTOR	15KΩ,1/10W
R332	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R351	QRSA08J-473YN	RESISTOR	47KΩ,1/10W
R352	QRSA08J-473YN	RESISTOR	47KΩ,1/10W
R353	QRSA08J-203YN	RESISTOR	20KΩ,1/10W
R354	QRSA08J-203YN	RESISTOR	20KΩ,1/10W
R355	QRSA08J-681YN	RESISTOR	680Ω,1/10W
R356	QRSA08J-681YN	RESISTOR	680Ω,1/10W
R357	QRSA08J-911YN	RESISTOR	910Ω,1/10W
R358	QRSA08J-911YN	RESISTOR	910Ω,1/10W
R359	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
R360	QRD161J-331	RESISTOR	330Ω,1/6W
R361	QRSA08J-333YN	RESISTOR	33KΩ,1/10W
R362	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R364	QRSA08J-103YN	RESISTOR	10KΩ,1/10W

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	R365	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
	R366	QRSA08J-223YN	RESISTOR	22KΩ,1/10W
	R367	QRSA08J-101YN	RESISTOR	100Ω,1/10W
	R368	QRSA08J-101YN	RESISTOR	100Ω,1/10W
	R369	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
	R370	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
	R371	QRSA08J-392YN	RESISTOR	3.9KΩ,1/10W
	R372	QRSA08J-392YN	RESISTOR	3.9KΩ,1/10W
	R373	QRSA08J-392YN	RESISTOR	3.9KΩ,1/10W
	R374	QRSA08J-392YN	RESISTOR	3.9KΩ,1/10W
	C301	QCYA1HK-821	CAPACITOR	820PF,50V
	C302	QCYA1HK-182	CAPACITOR	0.0018μF,50V
	C303	PU60550-105	E CAPACITOR	1μF,50V
	C304	QEK61EM-226	E CAPACITOR	22μF,25V
	C305	QFV21HJ-123	MM CAPACITOR	0.012μF,50V
	C306	QEK61HM-334	E CAPACITOR	0.33μF,50V
	C307	QCYA1HK-222	CAPACITOR	0.0022μF,50V
	C308	QCSA1HJ-102	CAPACITOR	0.001μF,50V
	C309	QEK61EM-475	E CAPACITOR	4.7μF,25V
	C310	QCC11CJ-104	CAPACITOR	0.1μF,16V
	C311	QCSA1HJ-331	CAPACITOR	330PF,50V
	C312	QFV71HJ-473	TF CAPACITOR	0.047μF,50V
	C313	QCYA1HK-272	CAPACITOR	0.0027μF,50V
	C314	QEK61HM-475	E CAPACITOR	4.7μF,50V
	C315	QCYA1HK-392	CAPACITOR	0.0039μF,50V
	C316	QEK61EM-336	E CAPACITOR	33μF,25V
	C317	QCC11CJ-104	CAPACITOR	0.1μF,16V
	C318	QEK61HM-105	E CAPACITOR	1μF,50V
	C319	QFV21HJ-473	MM CAPACITOR	0.047μF,50V
	C320	QCYA1HK-822	CAPACITOR	0.0082μF,50V
	C321	QCYA1HK-153	CAPACITOR	0.015μF,50V
	C322	QEK61HM-335	E CAPACITOR	3.3μF,50V
	C341	QETC1EM-106	E CAPACITOR	10μF,25V
	C344	QCC11EJ-103	CAPACITOR	0.01μF,25V
	L301	PU58308-123J	COIL	12mH
	L302	PU48530-471J	COIL	470μH
⚠	T301	PU60510-3	OSC TRANSFORMER	
	CN301	PU58844-2	CONNECTOR	
	CN302	PU58844-4	CONNECTOR	
	CN303	PU59555-3	CONNECTOR	
⚠	CP301	ICP-N10	CIRCUIT PROTECTOR	

– SERVO SECTION –

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	IC401	HD49733ANT	IC	
	Q401	2SA1267(YG)-TJK	TRANSISTOR	
		or 2SA1309(QRS)	TRANSISTOR	
		or 2SA933S(QRS)	TRANSISTOR	
	Q402	DTA144EU	TRANSISTOR	
	D402	1SS133	DIODE	
		or MA165	DIODE	
	D403	1SS133	DIODE	
	D404	1SS133	DIODE	
		or MA165	DIODE	
	D405	1SS133	DIODE	
		or MA165	DIODE	
	D406	DA114	DIODE	
		or DAN202U	DIODE	
	D411	1SS133	DIODE	
		or MA165	DIODE	
	D412	1SS133	DIODE	
		or MA165	DIODE	
	R401	QRSA08J-821YN	RESISTOR	820Ω,1/10W
	R402	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R403	QRSA08J-105YN	RESISTOR	1MΩ,1/10W
	R404	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R405	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R407	QRSA08J-823YN	RESISTOR	82KΩ,1/10W
	R408	QRSA08J-105YN	RESISTOR	1MΩ,1/10W
	R409	QRSA08J-104YN	RESISTOR	100KΩ,1/10W
	R410	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
	R411	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
	R412	QRSA08J-273YN	RESISTOR	27KΩ,1/10W
	R413	QRSA08J-682YN	RESISTOR	6.8KΩ,1/10W
	R414	QRSA08J-105YN	RESISTOR	1MΩ,1/10W
	R415	QRSA08J-473YN	RESISTOR	47KΩ,1/10W
	R416	QRSA08J-224YN	RESISTOR	220KΩ,1/10W
	R417	QRSA08J-225YN	RESISTOR	2.2MΩ,1/10W
	R418	QRSA08J-184YN	RESISTOR	180KΩ,1/10W
	R419	QRSA08J-823YN	RESISTOR	82KΩ,1/10W
	R420	QRSA08J-105YN	RESISTOR	1MΩ,1/10W
	R421	QRSA08J-393YN	RESISTOR	39KΩ,1/10W
	R422	QRSA08J-822YN	RESISTOR	8.2KΩ,1/10W
	R423	QRSA08J-105YN	RESISTOR	1MΩ,1/10W
	R424	QRSA08J-124YN	RESISTOR	120KΩ,1/10W
	R425	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R426	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
	R427	QVZ3518-474A	V RESISTOR,SP PB SW POINT	470KΩ
	R428	QRSA08J-473YN	RESISTOR	47KΩ,1/10W
	R429	QRSA08J-104YN	RESISTOR	100KΩ,1/10W
	R434	QRSA08J-333YN	RESISTOR	33KΩ,1/10W
	R435	QRSA08J-333YN	RESISTOR	33KΩ,1/10W
	C401	QCYA1HK-102	CAPACITOR	0.001μF,50V
	C402	QEK61AM-226	E CAPACITOR	22μF,10V
		or QETC1AM-226	E CAPACITOR	22μF,10V
	C403	QEK60JM-476	E CAPACITOR	47μF,6.3V
		or QETC0JM-476	E CAPACITOR	47μF,6.3V
	C404	QCTA1CH-121	CAPACITOR	120PF,16V

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C406	QCYA1HK-102	CAPACITOR	0.001μF,50V
C407	QEK61HM-105	E CAPACITOR	1μF,50V
	or QETC1HM-105	E CAPACITOR	1μF,50V
C408	QCYA1HK-102	CAPACITOR	0.001μF,50V
C409	QFV71HJ-563	TF CAPACITOR	0.056μF,50V
	or QFN31HJ-563	M CAPACITOR	0.056μF,50V
C410	QCYA1HK-102	CAPACITOR	0.001μF,50V
C412	QCYA1HK-223	CAPACITOR	0.022μF,50V
C413	QEK61AM-226	E CAPACITOR	22μF,10V
	or QETC1AM-226	E CAPACITOR	22μF,10V
C414	QFV71HJ-104	TF CAPACITOR	0.1μF,50V
	or QFN31HJ-104	M CAPACITOR	0.1μF,50V
C415	QFN31HJ-472	M CAPACITOR	0.0047μF,50V
C416	QEK61EM-475	E CAPACITOR	4.7μF,25V
	or QETC1EM-475	E CAPACITOR	4.7μF,25V
C417	QEK61EM-475	E CAPACITOR	4.7μF,25V
	or QETC1EM-475	E CAPACITOR	4.7μF,25V
C418	QEK61CM-106	E CAPACITOR	10μF,16V
	or QETC1CM-106	E CAPACITOR	10μF,16V
C419	QEK61CM-106	E CAPACITOR	10μF,16V
	or QETC1CM-106	E CAPACITOR	10μF,16V
C420	QFV71HJ-473	TF CAPACITOR	0.047μF,50V
	or QFN31HJ-473	M CAPACITOR	0.047μF,50V
C421	QEN61HM-105	NP E CAPACITOR	1μF,50V
C422	QCSA1HJ-101	CAPACITOR	100PF,50V
C423	QFN31HJ-682	M CAPACITOR	0.0068μF,50V
C426	QCTA1CH-181	CAPACITOR	180PF,16V
C427	QEN61HM-105	NP E CAPACITOR	1μF,50V
C428	QFV71HJ-473	TF CAPACITOR	0.047μF,50V
	or QFN31HJ-473	M CAPACITOR	0.047μF,50V
CN401	PU58844-3	CONNECTOR	
CN402	PU59555-4	CONNECTOR	
CN441	PEMC0714-013	CONNECTOR	
⚠ CP401	ICP-N15	CIRCUIT PROTECTOR	

– DEMODULATOR SECTION –

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
IC502	CXA1011P	IC	
Q502	DTA114EU	TRANSISTOR	
Q503	DTA144EU	TRANSISTOR	
Q504	2SC4081(RS)	TRANSISTOR	
Q505	2SC4081(RS)	TRANSISTOR	
Q506	2SC4081(RS)	TRANSISTOR	
Q507	DTA124EU	TRANSISTOR	
Q508	DTA124EU	TRANSISTOR	
Q509	DTC114EU	TRANSISTOR	
Q510	DTC114EU	TRANSISTOR	
D501	1SS133	DIODE	
D502	1SS133	DIODE	
D503	MA141WA	DIODE	
	or DAP202U	DIODE	
D505	1SS133	DIODE	
D506	1SS133	DIODE	
D509	1SS133	DIODE	
D510	1SS133	DIODE	
D811	DA113	DIODE	
	or DA204U	DIODE	
D812	RD7.5ES-T1B2	ZENER DIODE	
	or HZS7.5EB2	ZENER DIODE	
	or MTZ7.5B	ZENER DIODE	
R519	QRSA08J-223YN	RESISTOR	22KΩ,1/10W
R520	QRSA08J-223YN	RESISTOR	22KΩ,1/10W
R525	QRSA08J-752YN	RESISTOR	7.5KΩ,1/10W
R526	QRV144F-5603AY	CMF RESISTOR	560KΩ,1/4W
R527	QRV144F-2322AY	CMF RESISTOR	23.2KΩ,1/4W
R528	QRSA08J-272YN	RESISTOR	2.7KΩ,1/10W
R529	QRSA08J-153YN	RESISTOR	15KΩ,1/10W
R530	QRSA08J-561YN	RESISTOR	560Ω,1/10W
R531	QRSA08J-361YN	RESISTOR	360Ω,1/10W
R532	QRSA08J-682YN	RESISTOR	6.8KΩ,1/10W
R533	QRSA08J-301YN	RESISTOR	300Ω,1/10W
R534	QRSA08J-272YN	RESISTOR	2.7KΩ,1/10W
R539	QRSA08J-151YN	RESISTOR	150Ω,1/10W
R540	QRSA08J-151YN	RESISTOR	150Ω,1/10W
R541	QRSA08J-332YN	RESISTOR	3.3KΩ,1/10W
R542	QRSA08J-332YN	RESISTOR	3.3KΩ,1/10W
R543	QRSA08J-332YN	RESISTOR	3.3KΩ,1/10W
R544	QRSA08J-561YN	RESISTOR	560Ω,1/10W
R545	QRSA08J-473YN	RESISTOR	47KΩ,1/10W
R565	QRSA08J-332YN	RESISTOR	3.3KΩ,1/10W
R566	QRSA08J-132YN	RESISTOR	1.3KΩ,1/10W
C524	QETC1CM-106	E CAPACITOR	10μF,16V
C525	QEE81CJ-335	TANTAL CAPACITOR	3.3μF,16V
C526	QETC1HM-105	E CAPACITOR	1μF,50V
C527	QEE81CJ-106	TANTAL CAPACITOR	10μF,16V
C528	QEK61HM-225	E CAPACITOR	2.2μF,50V
C529	QEK61CM-106	E CAPACITOR	10μF,16V
C530	QFL31HJ-472	M CAPACITOR	0.0047μF,50V
	or QFLC1HJ-472Z	M CAPACITOR	0.0047μF,50V
C531	QENC1CM-106	NP E CAPACITOR	10μF,16V
C532	QFV71HJ-223	TF CAPACITOR	0.022μF,50V
C533	QFV71HJ-104	TF CAPACITOR	0.1μF,50V
C534	QEK61HM-105	E CAPACITOR	1μF,50V
C535	QETC1CM-107	E CAPACITOR	100μF,16V
C536	QEK61HM-105	E CAPACITOR	1μF,50V
CN501	PU58844-3	CONNECTOR	
CN502	PU58844-10	CONNECTOR	

- MECHACON SECTION -

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	IC601	M37524M4-117SP	IC	
	Q601	2SB1425(EU)	TRANSISTOR	
	Q602	DTC114EU	TRANSISTOR	
	Q603	DTC114EU	TRANSISTOR	
	D601	HZS7.5EB2	ZENER DIODE	
		or MTZ7.5B	ZENER DIODE	
	D602	MA165	DIODE	
		or 1SS133	DIODE	
	D603	MA165	DIODE	
		or 1SS133	DIODE	
	D604	MA165	DIODE	
		or 1SS133	DIODE	
	D605	MA165	DIODE	
		or 1SS133	DIODE	
	D606	11ES2	DIODE	
	R601	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R602	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R603	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R604	QRSA08J-332YN	RESISTOR	3.3KΩ,1/10W
	R605	QRSA08J-332YN	RESISTOR	3.3KΩ,1/10W
	R606	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R607	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R608	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R609	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R610	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R611	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
	R612	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R613	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R614	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R615	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R616	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R617	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R618	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R619	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R620	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R621	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R622	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R623	QRSA08J-471YN	RESISTOR	470Ω,1/10W
	R624	QRSA08J-471YN	RESISTOR	470Ω,1/10W
	R625	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R626	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R627	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R628	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R629	QRSA08J-333YN	RESISTOR	33KΩ,1/10W
	R630	QRSA08J-303YN	RESISTOR	30KΩ,1/10W
	R631	QRSA08J-154YN	RESISTOR	150KΩ,1/10W
	R632	QRSA08J-563YN	RESISTOR	56KΩ,1/10W
	R633	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
	R634	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R635	QRSA08J-681YN	RESISTOR	680Ω,1/10W
	R636	QRSA08J-105YN	RESISTOR	1MΩ,1/10W
	R637	QRSA08J-224YN	RESISTOR	220KΩ,1/10W
	R638	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R639	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
	R640	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R641	QRSA08J-152YN	RESISTOR	1.5KΩ,1/10W
	R642	QRSA08J-471YN	RESISTOR	470Ω,1/10W
	R650	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	R651	QRSA08J-333YN	RESISTOR	33KΩ,1/10W
	RA601	QRB045J-103XM	RESISTOR ARRAY	
		or QRB045J-103XF	RESISTOR ARRAY	
	RA602	QRB035J-103XM	RESISTOR ARRAY	
		or QRB035J-103XF	RESISTOR ARRAY	
	C601	QEK61HM-105	E CAPACITOR	1μF,50V
	C602	QEK61EM-335	E CAPACITOR	3.3μF,25V
	C603	QETC0JM-107	E CAPACITOR	100μF,6.3V
	C604	QCFA1HZ-473	CAPACITOR	0.047μF,50V
	C605	QCFA1HZ-223	CAPACITOR	0.022μF,50V
	C606	QETC1CM-227	E CAPACITOR	220μF,16V
	L601	PU59152-100J	COIL	10μH
⚠	CF601	PEVB0340	RESONATOR	
⚠	TH601	PESC1041	POSI THERMISTOR	
	CN601	PEMC0722-017	WIRE TRAP	
	CN602	PU59555-4	CONNECTOR	
⚠	CP601	ICP-N20	CIRCUIT PROTECTOR	
⚠	CP602	ICP-N25	CIRCUIT PROTECTOR	

- REGULATOR SECTION -

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	Q801	2SA1020	TRANSISTOR	
		or 2SB1010(QR)	TRANSISTOR	
	Q804	2SA1576(RS)	TRANSISTOR	
	R801	QRD161J-222	RESISTOR	2.2KΩ,1/6W
	R804	QRD161J-182	RESISTOR	1.8KΩ,1/6W
	R806	QRSA08J-393YN	RESISTOR	39KΩ,1/10W
	R809	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	C801	QEK61CM-336	E CAPACITOR	33μF,16V
	C821	QETC1CM-336	E CAPACITOR	33μF,16V
	L801	PU48530-101K	COIL	100μH
	CN801	PU61044-11	CONNECTOR	

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
	or PEMC0848-011	WIRE TRAP
CN802	PU60910-6	CONNECTOR
CN803	PU60910-8	CONNECTOR
⚠ CP801	ICP-N15	CIRCUIT PROTECTOR
⚠ CP802	ICP-N10	CIRCUIT PROTECTOR
⚠ CP804	ICP-N15	CIRCUIT PROTECTOR

****

VIDEO UNIT BOARD ASSEMBLY <05>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
PWBA	PB10510C-01	VIDEO UNIT BOARD ASSEMBLY
IC1	TL8825P	IC
IC2	JCP0002-2	IC
	or JCP0002-2A	IC
Q4	2SC4081(QRS)	TRANSISTOR
Q5	2SC4081(QRS)	TRANSISTOR
Q6	2SA1576(QRS)	TRANSISTOR
Q7	2SC4081(QRS)	TRANSISTOR
Q8	2SC4081(QRS)	TRANSISTOR
Q9	DTA144EU	TRANSISTOR
Q11	DTC144EU	TRANSISTOR
Q12	2SA1576(QRS)	TRANSISTOR
Q13	DTC144WU	TRANSISTOR
Q14	2SC4081(QRS)	TRANSISTOR
Q15	2SA1576(QRS)	TRANSISTOR
Q16	2SC4081(QRS)	TRANSISTOR
Q18	2SC4081(QRS)	TRANSISTOR
Q19	2SA1576(QRS)	TRANSISTOR
Q29	2SC4081(QRS)	TRANSISTOR
Q30	2SC4081(QRS)	TRANSISTOR
Q31	2SC4081(QRS)	TRANSISTOR
D1	1SS133	DIODE
	or MA165	DIODE
D2	1SS133	DIODE
	or MA165	DIODE
D5	1SS133	DIODE
	or MA165	DIODE
D6	1SS133	DIODE
	or MA165	DIODE
D7	1SS133	DIODE
	or MA165	DIODE
D8	1SS133	DIODE
	or MA165	DIODE
D9	1SS133	DIODE

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
	or MA165	DIODE	
D11	1SS133	DIODE	
	or MA165	DIODE	
D12	1SS133	DIODE	
	or MA165	DIODE	
D15	1SS133	DIODE	
	or MA165	DIODE	
D16	1SS133	DIODE	
	or MA165	DIODE	
D17	1SS133	DIODE	
	or MA165	DIODE	
D18	1SS292Y	DIODE	
R11	NVP1301-153NU	V.RESISTOR,Y/C SEP	15KΩ
R12	NVP1301-153NU	V.RESISTOR,Y/C SEP	15KΩ
R13	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	or NRSA63J-222NC	RESISTOR	2.2KΩ,1/16W
R14	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
R15	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
	or NRSA63J-472NC	RESISTOR	4.7KΩ,1/16W
R16	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
R17	NVP1301-102NU	V.RESISTOR,Y/C SEP	1KΩ
R18	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
R19	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
R20	NRSA63J-682N	RESISTOR	6.8KΩ,1/16W
	or NRSA63J-682NC	RESISTOR	6.8KΩ,1/16W
R21	NRSA63J-821N	RESISTOR	820Ω,1/16W
	or NRSA63J-821NC	RESISTOR	820Ω,1/16W
R22	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
R23	NRSA63J-392N	RESISTOR	3.9KΩ,1/16W
	or NRSA63J-392NC	RESISTOR	3.9KΩ,1/16W
R24	NRSA63J-242N	RESISTOR	2.4KΩ,1/16W
	or NRSA63J-242NC	RESISTOR	2.4KΩ,1/16W
R25	NVP1301-472NU	V.RESISTOR,YNR NC BAL	4.7KΩ
R26	NRSA63J-392N	RESISTOR	3.9KΩ,1/16W
	or NRSA63J-392NC	RESISTOR	3.9KΩ,1/16W
R27	NRSA63J-391N	RESISTOR	390Ω,1/16W
	or NRSA63J-391NC	RESISTOR	390Ω,1/16W
R28	NRSA63J-152N	RESISTOR	1.5KΩ,1/16W
	or NRSA63J-152NC	RESISTOR	1.5KΩ,1/16W
R29	NRSA63J-122N	RESISTOR	1.2KΩ,1/16W
	or NRSA63J-122NC	RESISTOR	1.2KΩ,1/16W
R32	NRSA63J-183N	RESISTOR	18KΩ,1/16W
	or NRSA63J-183NC	RESISTOR	18KΩ,1/16W
R33	NRSA63J-223N	RESISTOR	22KΩ,1/16W
	or NRSA63J-223NC	RESISTOR	22KΩ,1/16W
R34	NRSA63J-681N	RESISTOR	680Ω,1/16W
	or NRSA63J-681NC	RESISTOR	680Ω,1/16W
R35	ERS-L39J-102U	RESISTOR	
R36	NRSA63J-112N	RESISTOR	1.1KΩ,1/16W
	or NRSA63J-112NC	RESISTOR	1.1KΩ,1/16W
R37	NRSA63J-392N	RESISTOR	3.9KΩ,1/16W
	or NRSA63J-392NC	RESISTOR	3.9KΩ,1/16W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R38	NVP1301-222NU	V.RESISTOR,PB Y LEVEL	2.2KΩ
R39	NRSA63J-333N	RESISTOR	33KΩ,1/16W
	or NRSA63J-333NC	RESISTOR	33KΩ,1/16W
R40	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
	or NRSA63J-472NC	RESISTOR	4.7KΩ,1/16W
R41	NVP1301-153NU	V.RESISTOR,CARRIER	15KΩ
R42	NVP1301-103NU	V.RESISTOR,DEVIATION	10KΩ
R43	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	or NRSA63J-222NC	RESISTOR	2.2KΩ,1/16W
R44	NRSA63J-432N	RESISTOR	4.3KΩ,1/16W
	or NRSA63J-432NC	RESISTOR	4.3KΩ,1/16W
R45	NRSA63J-122N	RESISTOR	1.2KΩ,1/16W
	or NRSA63J-122NC	RESISTOR	1.2KΩ,1/16W
R46	NRSA63J-183N	RESISTOR	18KΩ,1/16W
	or NRSA63J-183NC	RESISTOR	18KΩ,1/16W
R47	NRSA63J-681N	RESISTOR	680Ω,1/16W
	or NRSA63J-681NC	RESISTOR	680Ω,1/16W
R48	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	or NRSA63J-103NC	RESISTOR	10KΩ,1/16W
R49	NRSA63G-102N	RESISTOR	1KΩ,1/16W
	or NRSA63G-102NC	RESISTOR	1KΩ,1/16W
R50	NRSA63J-123N	RESISTOR	12KΩ,1/16W
	or NRSA63J-123NC	RESISTOR	12KΩ,1/16W
R51	NRSA63J-682N	RESISTOR	6.8KΩ,1/16W
	or NRSA63J-682NC	RESISTOR	6.8KΩ,1/16W
R52	NRSA63J-331N	RESISTOR	330Ω,1/16W
	or NRSA63J-331NC	RESISTOR	330Ω,1/16W
R53	NRSA63J-681N	RESISTOR	680Ω,1/16W
	or NRSA63J-681NC	RESISTOR	680Ω,1/16W
R54	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	or NRSA63J-222NC	RESISTOR	2.2KΩ,1/16W
R55	NRSA63J-182N	RESISTOR	1.8KΩ,1/16W
	or NRSA63J-182NC	RESISTOR	1.8KΩ,1/16W
R57	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	or NRSA63J-222NC	RESISTOR	2.2KΩ,1/16W
R58	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
R59	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
R60	NVP1301-223NU	V.RESISTOR,EE Y LEVEL	22KΩ
R61	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
R62	NRSA63J-334N	RESISTOR	330KΩ,1/16W
	or NRSA63J-334NC	RESISTOR	330KΩ,1/16W
R63	NVP1301-103NU	V.RESISTOR,WHITE CLIP	10KΩ
R64	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	or NRSA63J-103NC	RESISTOR	10KΩ,1/16W
R65	NRSA63J-564N	RESISTOR	560KΩ,1/16W
	or NRSA63J-564NC	RESISTOR	560KΩ,1/16W
R66	NRSA63J-183N	RESISTOR	18KΩ,1/16W
	or NRSA63J-183NC	RESISTOR	18KΩ,1/16W
R67	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
R68	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
R69	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
	or NRSA63J-0R0NC	RESISTOR	0Ω,1/16W
R70	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	or NRSA63J-102NC	RESISTOR	1KΩ,1/16W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R71	NRSA63J-475N	RESISTOR	4.7MΩ,1/16W
	or NRSA63J-475NC	RESISTOR	4.7MΩ,1/16W
R72	NRSA63J-475N	RESISTOR	4.7MΩ,1/16W
	or NRSA63J-475NC	RESISTOR	4.7MΩ,1/16W
R73	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
	or NRSA63J-562NC	RESISTOR	5.6KΩ,1/16W
R74	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
R75	NRSA63J-391N	RESISTOR	390Ω,1/16W
	or NRSA63J-391NC	RESISTOR	390Ω,1/16W
R76	NRSA63J-681N	RESISTOR	680Ω,1/16W
	or NRSA63J-681NC	RESISTOR	680Ω,1/16W
R84	NRSA63J-471N	RESISTOR	470Ω,1/16W
	or NRSA63J-471NC	RESISTOR	470Ω,1/16W
R86	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	or NRSA63J-222NC	RESISTOR	2.2KΩ,1/16W
R87	NRSA63J-681N	RESISTOR	680Ω,1/16W
	or NRSA63J-681NC	RESISTOR	680Ω,1/16W
R88	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
R89	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
R93	NRSA63J-475N	RESISTOR	4.7MΩ,1/16W
	or NRSA63J-475NC	RESISTOR	4.7MΩ,1/16W
R94	NRSA63J-154N	RESISTOR	150KΩ,1/16W
	or NRSA63J-154NC	RESISTOR	150KΩ,1/16W
C5	QETC1HM-474	E CAPACITOR	0.47μF,50V
C6	QETC1EM-475	E CAPACITOR	4.7μF,25V
C7	QETC1CM-106	E CAPACITOR	10μF,16V
C8	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C9	QETC1CM-106	E CAPACITOR	10μF,16V
C10	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C11	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C12	NCB31HK-472A	CAPACITOR	0.0047μF,50V
C14	QETC1HM-105	E CAPACITOR	1μF,50V
C15	QETC1CM-106	E CAPACITOR	10μF,16V
C16	QETC1HM-105	E CAPACITOR	1μF,50V
C17	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C18	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C19	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C20	NCS31HJ-330A	CAPACITOR	33PF,50V
C21	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C22	NCS31HJ-330A	CAPACITOR	33PF,50V
C23	QETC0JM-476	E CAPACITOR	47μF,6.3V
C24	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C25	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C26	NCS31HJ-820A	CAPACITOR	82PF,50V
C28	QETC1HM-474	E CAPACITOR	0.47μF,50V
C29	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C30	QETC1HM-474	E CAPACITOR	0.47μF,50V
C31	QEN61CM-106	NP E CAPACITOR	10μF,16V
	or QENC1CM-106	NP E CAPACITOR	10μF,16V
C32	QETC1EM-475	E CAPACITOR	4.7μF,25V
C33	QETC0JM-107	E CAPACITOR	100μF,6.3V

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	C34	NCF31HZ-103A	CAPACITOR	0.01µF,50V
	C35	NCF31HZ-103A	CAPACITOR	0.01µF,50V
	C36	NCF31HZ-103A	CAPACITOR	0.01µF,50V
	C37	NCF31HZ-103A	CAPACITOR	0.01µF,50V
	C38	QETC1EM-475	E CAPACITOR	4.7µF,25V
	C39	QETC1HM-474	E CAPACITOR	0.47µF,50V
	C40	NCS31HG-181A	CAPACITOR	180PF,50V
	C41	QETC1EM-475	E CAPACITOR	4.7µF,25V
	C42	NCB31EK-223A	CAPACITOR	0.022µF,25V
	C43	NCS31HG-150A	CAPACITOR	15PF,50V
	C44	QETC1HM-105	E CAPACITOR	1µF,50V
	C45	NCB31HK-222A	CAPACITOR	0.0022µF,50V
	C46	NCS31HJ-121A	CAPACITOR	120PF,50V
	C48	NCF31CZ-473A	CAPACITOR	0.047µF,16V
	C49	NCF31CZ-104A	CAPACITOR	0.1µF,16V
	C50	NCS31HJ-200A	CAPACITOR	20PF,50V
	C51	NCF31HZ-103A	CAPACITOR	0.01µF,50V
	C52	NCS31HJ-271A	CAPACITOR	270PF,50V
	C53	NCS31HJ-330A	CAPACITOR	33PF,50V
	C54	NCS31HJ-121A	CAPACITOR	120PF,50V
	C55	NCF31HZ-103A	CAPACITOR	0.01µF,50V
	C57	QETC0JM-476	E CAPACITOR	47µF,6.3V
	C58	NCF31HZ-103A	CAPACITOR	0.01µF,50V
	C59	QETC1HM-475	E CAPACITOR	4.7µF,50V
	C60	QETC1EM-335	E CAPACITOR	3.3µF,25V
	C61	QETC1HM-475	E CAPACITOR	4.7µF,50V
	C62	NCB31CK-333A	CAPACITOR	0.033µF,16V
	C63	QETC1HM-225	E CAPACITOR	2.2µF,50V
	C64	NCF31HZ-103A	CAPACITOR	0.01µF,50V
	C65	QEN61HM-474	NP E CAPACITOR	0.47µF,50V
		or QENC1HM-474	NP E CAPACITOR	0.47µF,50V
	C66	NCB31CK-333A	CAPACITOR	0.033µF,16V
	C67	NCF31HZ-103A	CAPACITOR	0.01µF,50V
	C68	QCC31CJ-273	CAPACITOR	0.027µF,16V
	C69	QETC0JM-226	E CAPACITOR	22µF,6.3V
	C70	NCF31CZ-473A	CAPACITOR	0.047µF,16V
	C71	NCF31HZ-103A	CAPACITOR	0.01µF,50V
	C72	NCS31HJ-560A	CAPACITOR	56PF,50V
	C74	QETC1HM-105	E CAPACITOR	1µF,50V
	C75	QETC0JM-107	E CAPACITOR	100µF,6.3V
	C76	NCF31HZ-103A	CAPACITOR	0.01µF,50V
	C77	NCF31HZ-103A	CAPACITOR	0.01µF,50V
	C78	QETC1HM-104	E CAPACITOR	0.1µF,50V
	C79	QETC1CM-106	E CAPACITOR	10µF,16V
	C80	NCS31HJ-390A	CAPACITOR	39PF,50V
	C81	QCSA1HG-821	CAPACITOR	820PF,50V
	C82	QETC0JM-226	E CAPACITOR	22µF,6.3V
	C83	NCS31HJ-271A	CAPACITOR	270PF,50V
	C88	NCF31HZ-103A	CAPACITOR	0.01µF,50V
	C91	NCF31HZ-103A	CAPACITOR	0.01µF,50V
	C92	NCS31HJ-620A	CAPACITOR	62PF,50V
	C96	QETC1CM-106	E CAPACITOR	10µF,16V
	C98	NCS31HJ-330A	CAPACITOR	33PF,50V
	C100	NCS31HJ-100A	CAPACITOR	10PF,50V
	C104	NCB31HK-102A	CAPACITOR	0.001µF,50V

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	C105	QCF81CZ-105	CAPACITOR	1µF,16V
	L1	PU48530-101K	COIL	100µH
	L2	PU48530-101K	COIL	100µH
	L3	PU59988-560J	COIL	56µH
	L4	PU48530-101K	COIL	100µH
	L5	PU59988-390J	COIL	39µH
	L6	PU59988-330J	COIL	33µH
	L7	PU59988-221J	COIL	220µH
	L8	PU59988-820J	COIL	82µH
	L9	PU48530-391J	COIL	390µH
	L11	PU48530-561J	COIL	560µH
	L12	PU48530-222J	COIL	2.2mH
	L13	PU48530-101K	COIL	100µH
	L14	PU48530-820J	COIL	82µH
	L16	PU59988-390J	COIL	39µH
	LPF1	PELN0342	LOW PASS FILTER	
	LPF2	PU60632-2	LOW PASS FILTER	
	LPF3	PU60128-5	LOW PASS FILTER	
⚠	X1	PEVB0347-Z	CRYSTAL RESONATOR	
	SLD1	PQ33660	SHIELD CASE	
	SLD2	PQ44980	SHIELD PLATE	
	CN1	PEMC0712-110	PIN HEADER	
	CN2	PEMC0712-115	PIN HEADER	
	CN3	PEMC0712-112	PIN HEADER	

****

AUDIO UNIT BOARD ASSEMBLY <09>

REF No.	PART No.	PART NAME, DESCRIPTION
PWBA	PB10476A-04	AUDIO UNIT BOARD ASSEMBLY
IC1	BA7708KS	IC
IC2	BA15218F	IC
	or XRA15218F	IC
IC3	M5278L09	IC
Q1	2SC4097(QR)	TRANSISTOR
Q2	2SC4097(QR)	TRANSISTOR
Q3	2SC4097(QR)	TRANSISTOR
Q4	2SC4097(QR)	TRANSISTOR
Q5	DTA114EU	TRANSISTOR
Q6	DTC114EU	TRANSISTOR
Q7	2SA1577(QR)	TRANSISTOR

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
D1	DAP202U	DIODE	
R1	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
	or NRSA63J-0R0NC	RESISTOR	0Ω,1/16W
R2	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
	or NRSA63J-0R0NC	RESISTOR	0Ω,1/16W
R5	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
	or NRSA63J-0R0NC	RESISTOR	0Ω,1/16W
R6	NRSA63J-821N	RESISTOR	820Ω,1/16W
	or NRSA63J-821NC	RESISTOR	820Ω,1/16W
R7	NRSA63J-821N	RESISTOR	820Ω,1/16W
	or NRSA63J-821NC	RESISTOR	820Ω,1/16W
R8	NRSA63J-681N	RESISTOR	680Ω,1/16W
	or NRSA63J-681NC	RESISTOR	680Ω,1/16W
R9	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	or NRSA63J-103NC	RESISTOR	10KΩ,1/16W
R10	NRSA63J-112N	RESISTOR	1.1KΩ,1/16W
	or NRSA63J-112NC	RESISTOR	1.1KΩ,1/16W
R11	NRSA63J-123N	RESISTOR	12KΩ,1/16W
	or NRSA63J-123NC	RESISTOR	12KΩ,1/16W
R12	NRSA63J-392N	RESISTOR	3.9KΩ,1/16W
	or NRSA63J-392NC	RESISTOR	3.9KΩ,1/16W
R13	NRSA63J-104N	RESISTOR	100KΩ,1/16W
	or NRSA63J-104NC	RESISTOR	100KΩ,1/16W
R14	NRSA63J-225N	RESISTOR	2.2MΩ,1/16W
	or NRSA63J-225NC	RESISTOR	2.2MΩ,1/16W
R15	NRSA63J-333N	RESISTOR	33KΩ,1/16W
	or NRSA63J-333NC	RESISTOR	33KΩ,1/16W
R16	NRSA63J-821N	RESISTOR	820Ω,1/16W
	or NRSA63J-821NC	RESISTOR	820Ω,1/16W
R17	NRSA63J-821N	RESISTOR	820Ω,1/16W
	or NRSA63J-821NC	RESISTOR	820Ω,1/16W
R18	NRSA63J-681N	RESISTOR	680Ω,1/16W
	or NRSA63J-681NC	RESISTOR	680Ω,1/16W
R19	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	or NRSA63J-103NC	RESISTOR	10KΩ,1/16W
R20	NRSA63J-112N	RESISTOR	1.1KΩ,1/16W
	or NRSA63J-112NC	RESISTOR	1.1KΩ,1/16W
R21	NRSA63J-123N	RESISTOR	12KΩ,1/16W
	or NRSA63J-123NC	RESISTOR	12KΩ,1/16W
R22	NRSA63J-392N	RESISTOR	3.9KΩ,1/16W
	or NRSA63J-392NC	RESISTOR	3.9KΩ,1/16W
R23	NRSA63J-104N	RESISTOR	100KΩ,1/16W
	or NRSA63J-104NC	RESISTOR	100KΩ,1/16W
R24	NVP1301-153NU	V.RESISTOR,LEVEL(L)	15KΩ
R25	NRSA63J-273N	RESISTOR	27KΩ,1/16W
	or NRSA63J-273NC	RESISTOR	27KΩ,1/16W
R26	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	or NRSA63J-103NC	RESISTOR	10KΩ,1/16W
R27	NVP1301-103NU	V.RESISTOR,CARRIER(L)	10KΩ
R28	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	or NRSA63J-103NC	RESISTOR	10KΩ,1/16W
R29	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
	or NRSA63J-272NC	RESISTOR	2.7KΩ,1/16W
R30	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	or NRSA63J-222NC	RESISTOR	2.2KΩ,1/16W
R33	NRSA63J-104N	RESISTOR	100KΩ,1/16W
	or NRSA63J-104NC	RESISTOR	100KΩ,1/16W
R34	NRSA63J-123N	RESISTOR	12KΩ,1/16W
	or NRSA63J-123NC	RESISTOR	12KΩ,1/16W
R35	NRSA63J-752N	RESISTOR	7.5KΩ,1/16W
	or NRSA63J-752NC	RESISTOR	7.5KΩ,1/16W
R36	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	or NRSA63J-103NC	RESISTOR	10KΩ,1/16W
R37	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
	or NRSA63J-472NC	RESISTOR	4.7KΩ,1/16W
R38	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
	or NRSA63J-332NC	RESISTOR	3.3KΩ,1/16W
R39	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	or NRSA63J-222NC	RESISTOR	2.2KΩ,1/16W
R40	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	or NRSA63J-222NC	RESISTOR	2.2KΩ,1/16W
R41	NVP1301-332NU	V.RESISTOR,CARRIER(R)	3.3KΩ
R42	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	or NRSA63J-103NC	RESISTOR	10KΩ,1/16W
R43	NRSA63J-273N	RESISTOR	27KΩ,1/16W
	or NRSA63J-273NC	RESISTOR	27KΩ,1/16W
R44	NVP1301-153NU	V.RESISTOR,LEVEL(R)	15KΩ
R45	NRSA63J-331N	RESISTOR	330Ω,1/16W
	or NRSA63J-331NC	RESISTOR	330Ω,1/16W
R46	NRSA63J-223N	RESISTOR	22KΩ,1/16W
	or NRSA63J-223NC	RESISTOR	22KΩ,1/16W
R47	NRSA63J-223N	RESISTOR	22KΩ,1/16W
	or NRSA63J-223NC	RESISTOR	22KΩ,1/16W
R48	NRSA63J-681N	RESISTOR	680Ω,1/16W
	or NRSA63J-681NC	RESISTOR	680Ω,1/16W
R49	NRSA63J-331N	RESISTOR	330Ω,1/16W
	or NRSA63J-331NC	RESISTOR	330Ω,1/16W
R50	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
R51	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
R52	NRSA63J-680N	RESISTOR	68Ω,1/16W
	or NRSA63J-680NC	RESISTOR	68Ω,1/16W
R53	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
	or NRSA63J-472NC	RESISTOR	4.7KΩ,1/16W
R54	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
	or NRSA63J-472NC	RESISTOR	4.7KΩ,1/16W
R55	NRSA63J-680N	RESISTOR	68Ω,1/16W
	or NRSA63J-680NC	RESISTOR	68Ω,1/16W
R56	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
R57	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
R59	NRSA63J-333N	RESISTOR	33KΩ,1/16W
	or NRSA63J-333NC	RESISTOR	33KΩ,1/16W
R61	NRSA63J-333N	RESISTOR	33KΩ,1/16W
	or NRSA63J-333NC	RESISTOR	33KΩ,1/16W
R62	NRSA63J-333N	RESISTOR	33KΩ,1/16W
	or NRSA63J-333NC	RESISTOR	33KΩ,1/16W
R63	NRSA63J-331N	RESISTOR	330Ω,1/16W
	or NRSA63J-331NC	RESISTOR	330Ω,1/16W
R65	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
R66	NRSA63J-333N	RESISTOR	33KΩ,1/16W
	or NRSA63J-333NC	RESISTOR	33KΩ,1/16W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R67	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
	or NRSA63J-0R0NC	RESISTOR	0Ω,1/16W
R69	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
	or NRSA63J-0R0NC	RESISTOR	0Ω,1/16W
R71	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	or NRSA63J-103NC	RESISTOR	10KΩ,1/16W
C1	QETC1HM-475	E CAPACITOR	4.7μF,50V
C2	QETC1HM-475	E CAPACITOR	4.7μF,50V
C4	QFL31HJ-682	M CAPACITOR	0.0068μF,50V
C5	QFL31HJ-102	M CAPACITOR	0.001μF,50V
C6	QFV71HJ-223	TF CAPACITOR	0.022μF,50V
	or QFLA1HJ-223Z	M CAPACITOR	0.022μF,50V
	or QFV11HJ-223	MMT CAPACITOR	0.022μF,50V
C7	QETC1HM-106	E CAPACITOR	10μF,50V
C8	QETC1HM-475	E CAPACITOR	4.7μF,50V
C9	QFV71HJ-223	TF CAPACITOR	0.022μF,50V
	or QFLA1HJ-223Z	M CAPACITOR	0.022μF,50V
	or QFV11HJ-223	MMT CAPACITOR	0.022μF,50V
C10	QETC1EM-476	E CAPACITOR	47μF,25V
C11	QFV71HJ-153	TF CAPACITOR	0.015μF,50V
	or QFLA1HJ-153Z	M CAPACITOR	0.015μF,50V
	or QFV11HJ-153	MM CAPACITOR	0.015μF,50V
C12	NCB31EK-332A	CAPACITOR	0.0033μF,25V
C13	NCB31HK-102A	CAPACITOR	0.001μF,50V
C14	NCB31HK-122A	CAPACITOR	0.0012μF,50V
C15	NCB31HK-102A	CAPACITOR	0.001μF,50V
C18	QEN61EM-475	NP E CAPACITOR	4.7μF,25V
	or QENC1EM-475	NP E CAPACITOR	4.7μF,25V
C19	QEN61EM-475	NP E CAPACITOR	4.7μF,25V
	or QENC1EM-475	NP E CAPACITOR	4.7μF,25V
C20	QETC1HM-475	E CAPACITOR	4.7μF,50V
C21	QETC1HM-475	E CAPACITOR	4.7μF,50V
C22	QETC1EM-476	E CAPACITOR	47μF,25V
C23	QETC1HM-106	E CAPACITOR	10μF,50V
C24	QETC1EM-476	E CAPACITOR	47μF,25V
C25	QETC1HM-475	E CAPACITOR	4.7μF,50V
C26	NCB31HK-152A	CAPACITOR	0.0015μF,50V
C27	QETC1EM-226	E CAPACITOR	22μF,25V
C28	NCB31HK-152A	CAPACITOR	0.0015μF,50V
C29	QETC1EM-226	E CAPACITOR	22μF,25V
C30	QETC1HM-475	E CAPACITOR	4.7μF,50V
C31	QETC1HM-335	E CAPACITOR	3.3μF,50V
C32	QETC1HM-335	E CAPACITOR	3.3μF,50V
C33	QETC1HM-106	E CAPACITOR	10μF,50V
C34	QFL31HJ-682	M CAPACITOR	0.0068μF,50V
C35	QFL31HJ-102	M CAPACITOR	0.001μF,50V
C36	QFV71HJ-223	TF CAPACITOR	0.022μF,50V
	or QFLA1HJ-223Z	M CAPACITOR	0.022μF,50V
	or QFV11HJ-223	MMT CAPACITOR	0.022μF,50V
C37	QETC1HM-106	E CAPACITOR	10μF,50V
C38	QETC1HM-475	E CAPACITOR	4.7μF,50V
C39	QFV71HJ-223	TF CAPACITOR	0.022μF,50V
	or QFLA1HJ-223Z	M CAPACITOR	0.022μF,50V
	or QFV11HJ-223	MMT CAPACITOR	0.022μF,50V
C40	QETC1EM-476	E CAPACITOR	47μF,25V

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C41	QFV71HJ-153	TF CAPACITOR	0.015μF,50V
	or QFLA1HJ-153Z	M CAPACITOR	0.015μF,50V
	or QFV11HJ-153	MM CAPACITOR	0.015μF,50V
C42	NCB31EK-332A	CAPACITOR	0.0033μF,25V
C43	NCB31HK-102A	CAPACITOR	0.001μF,50V
C44	NCB31HK-122A	CAPACITOR	0.0012μF,50V
C45	NCB31HK-102A	CAPACITOR	0.001μF,50V
C46	QETC1HM-335	E CAPACITOR	3.3μF,50V
C47	NCB31EK-103A	CAPACITOR	0.01μF,25V
C48	QETC1EM-476	E CAPACITOR	47μF,25V
C49	NCB31EK-103A	CAPACITOR	0.01μF,25V
C50	QETC1EM-476	E CAPACITOR	47μF,25V
C51	NCB31HK-102A	CAPACITOR	0.001μF,50V
C52	NCB31EK-103A	CAPACITOR	0.01μF,25V
C53	NCB31HK-332A	CAPACITOR	0.0033μF,50V
C55	QETC1HM-105	E CAPACITOR	1μF,50V
C56	NCB31HK-102A	CAPACITOR	0.001μF,50V
C57	NCB31EK-103A	CAPACITOR	0.01μF,25V
C58	NCB31EK-103A	CAPACITOR	0.01μF,25V
C59	QETC1EM-476	E CAPACITOR	47μF,25V
C60	NCB31EK-103A	CAPACITOR	0.01μF,25V
C61	QETC1HM-335	E CAPACITOR	3.3μF,50V
C62	QETC1HM-475	E CAPACITOR	4.7μF,50V
C63	QETC1HM-475	E CAPACITOR	4.7μF,50V
C64	QETC1EM-476	E CAPACITOR	47μF,25V
C65	QETC1EM-476	E CAPACITOR	47μF,25V
L1	PU48530-101J	COIL	100μH
BPF1	PU60396	BAND PASS FILTER	
BPF2	PU60397	BAND PASS FILTER	
CN1	PEMC0778-120	PIN HEADER	
CN2	PEMC0778-120	PIN HEADER	

****

A/C HEAD BOARD ASSEMBLY <12>

PWB1	PB40068	A/CTL HEAD ROARD
CN1	PU58844-107	CAP HOUSING

* *

DEMODULATOR BOARD ASSEMBLY <14>

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
PWBA	PB20453B	DEMODULATOR BOARD ASSEMBLY	
IC501	UPC1870CA	IC	
Q501	2SD1450S,T	TRANSISTOR	
Q512	2SD1450S,T	TRANSISTOR	
R501	QVZ3531-103	V RESISTOR,SAP BPF	10KΩ
R502	QVZ3531-473	V RESISTOR,VCO	47KΩ
R503	QVZ3531-473	V RESISTOR,LPF	47KΩ
R504	QVZ3523-683AZ	V RESISTOR,SEPARATION	68KΩ
R505	QVZ3523-104AZ	V RESISTOR,SEPARATION	100KΩ
R506	QVZ3523-472A	V RESISTOR,SAP LEVEL	4.7KΩ
R511	QRSA08J-153YN	RESISTOR	15KΩ,1/10W
R512	QRSA08J-182YN	RESISTOR	1.8KΩ,1/10W
R513	QRV144F-1002A	CMF RESISTOR	10.0KΩ,1/4W
R515	QRV144F-7502AY	RESISTOR	75.0KΩ,1/4W
R516	QRV144F-5493AY	RESISTOR	549KΩ,1/4W
R517	QRSA08J-563YN	RESISTOR	56KΩ,1/10W
R518	QRSA08J-124YN	RESISTOR	120KΩ,1/10W
R519	QRSA08J-223YN	RESISTOR	22KΩ,1/10W
R520	QRSA08J-223YN	RESISTOR	22KΩ,1/10W
R521	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R522	QRSA08J-303YN	RESISTOR	30KΩ,1/10W
R523	QRV144F-8202AY	RESISTOR	82.0KΩ,1/4W
R524	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R535	QRSA08J-562YN	RESISTOR	5.6KΩ,1/10W
R536	QRSA08J-562YN	RESISTOR	5.6KΩ,1/10W
R537	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R538	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R550	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R552	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R554	QRD161J-271	RESISTOR	270Ω,1/6W
R561	QRD161J-471	RESISTOR	470Ω,1/6W
R562	QRD161J-561	RESISTOR	560Ω,1/6W
R563	QRD161J-471	RESISTOR	470Ω,1/6W
R564	QRD161J-561	RESISTOR	560Ω,1/6W
C501	QETC1CM-107	E CAPACITOR	100μF,16V
C502	QETC1CM-106	E CAPACITOR	10μF,16V
C503	QFV71HJ-154	TF CAPACITOR	0.15μF,50V
C504	QCBB1HJ-102	CAPACITOR	0.001μF,50V
C505	QFV71HJ-104	TF CAPACITOR	0.1μF,50V
C506	QEK61HM-474	E CAPACITOR	0.47μF,50V
C507	QEK61CM-106	E CAPACITOR	10μF,16V
C509	QEK61HM-474	E CAPACITOR	0.47μF,50V
C510	QEK61HM-474	E CAPACITOR	0.47μF,50V
C511	QEK61HM-474	E CAPACITOR	0.47μF,50V
C512	QEE81CJ-335	TANTAL CAPACITOR	3.3μF,16V
C513	QEE81VJ-105	TANTAL CAPACITOR	1μF,35V
C514	QFV71HJ-104	TF CAPACITOR	0.1μF,50V
C515	QETC1CM-106	E CAPACITOR	10μF,16V
C516	QEK61CM-106	E CAPACITOR	10μF,16V
C517	QEK61HM-225	E CAPACITOR	2.2μF,50V
C518	QETC1HM-105	E CAPACITOR	1μF,50V
C519	QETC1HM-475	E CAPACITOR	4.7μF,50V
C520	QETC1CM-107	E CAPACITOR	100μF,16V
C521	QETC1CM-226	E CAPACITOR	22μF,16V
C522	QFV71HJ-223	TF CAPACITOR	0.022μF,50V
C523	QEK61HM-105	E CAPACITOR	1μF,50V
C537	QETC1CM-106	E CAPACITOR	10μF,16V
C538	QETC1CM-106	E CAPACITOR	10μF,16V
C539	QFV71HJ-123	TF CAPACITOR	0.012μF,50V
C540	QFV71HJ-123	TF CAPACITOR	0.012μF,50V
C541	QCVB1CN-103	CAPACITOR	0.01μF,16V
C542	QETC1CM-107	E CAPACITOR	100μF,16V
L501	PU60211	LOW PASS FILTER	
L502	PU60211	LOW PASS FILTER	
SPC1	PU59210-003	W.LOKING SPACER,X3	
CN501	PU58844-3	CONNECTOR	
CN502	PU58844-10	CONNECTOR	

* *

ON SCREEN BOARD ASSEMBLY <17>

#△ REF No.	PART No.	PART NAME, DESCRIPTION
PWBA	PB10501A2-01	ON SCREEN BOARD ASSEMBLY
IC901	M50554-262SP	IC
IC951	M52684AP	IC
Q901	DTA114EU	TRANSISTOR
Q902	DTA114EU	TRANSISTOR
Q903	2SA1576(RS)	TRANSISTOR
Q904	2SC4081(RS)	TRANSISTOR
Q905	2SA1576(RS)	TRANSISTOR
Q906	2SC4081(RS)	TRANSISTOR

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R901	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R902	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
R903	QRSA08J-681YN	RESISTOR	680Ω,1/10W
R904	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R905	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R906	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R907	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R908	QRSA08J-332YN	RESISTOR	3.3KΩ,1/10W
R909	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
R911	QRSA08J-123YN	RESISTOR	12KΩ,1/10W
R912	QRSA08J-332YN	RESISTOR	3.3KΩ,1/10W
R916	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R917	QRSA08J-123YN	RESISTOR	12KΩ,1/10W
R918	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R919	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R921	QRSA08J-221YN	RESISTOR	220Ω,1/10W
R924	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
R926	QRSA08J-182YN	RESISTOR	1.8KΩ,1/10W
R930	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R931	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R932	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
R933	QRSA08J-151YN	RESISTOR	150Ω,1/10W
R941	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
R942	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R952	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R953	QRSA08J-271YN	RESISTOR	270Ω,1/10W
R954	QRSA08J-152YN	RESISTOR	1.5KΩ,1/10W
R955	QRSA08J-393YN	RESISTOR	39KΩ,1/10W
R956	QRSA08J-223YN	RESISTOR	22KΩ,1/10W
C901	QETC0JM-107	E CAPACITOR	100μF,6.3V
C902	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C903	QETC0JM-107	E CAPACITOR	100μF,6.3V
C904	QCVB1CN-103	CAPACITOR	0.01μF,16V
C905	QAT3123-450	TRIM CAP,DOT CLOCK	45PF
C906	QCTA1CH-150	CAPACITOR	15PF,16V
C907	QCSA1HJ-470	CAPACITOR	47PF,50V
C909	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C910	QCSA1HJ-270	CAPACITOR	27PF,50V
C911	QEP61HM-105	NP E CAPACITOR	1μF,50V
C912	QCSA1HJ-270	CAPACITOR	27PF,50V
C915	QCTA1CH-220	CAPACITOR	22PF,16V
C916	QAT3123-300	TRIM CAP,COLOR BURST	30PF
C921	QCSA1HJ-181	CAPACITOR	180PF,50V
C922	QCSA1HJ-101	CAPACITOR	100PF,50V
C923	QCSA1HJ-560	CAPACITOR	56PF,50V
C924	QCSA1HJ-560	CAPACITOR	56PF,50V
C951	QFN31HJ-562	M CAPACITOR	0.0056μF,50V
C952	QCTA1CH-220	CAPACITOR	22PF,16V
C953	QCFA1HZ-152	CAPACITOR	0.0015μF,50V
C954	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C955	QEK61HM-105	E CAPACITOR	1μF,50V

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C957	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C959	QEK61HM-106	E CAPACITOR	10μF,50V
L901	PU54223-101K	COIL	100μH
L902	PU58333-220J	COIL	22μH
L903	PU54223-101K	COIL	100μH
L905	PU59152-220J	COIL	22μH
L906	PU59152-220J	COIL	22μH
⚠ CF951	PU60086	RESONATOR	
⚠ X901	PU60747	CRYSTAL RESONATOR	
CN901	PEMC0714-011	CONNECTOR	
CN902	PEMC0713-111	CONNECTOR	

****

TIMER/DISP/SW BOARD ASSEMBLY <21>

PWBA	PB10501A3-01	T/D/S BOARD ASSEMBLY
IC701	HD404720A04S	IC
	or HD4074720SA04	IC
IC702	CAT93C46P	IC
	or 93C46/P	IC
IC703	GP1U541X	IR DETECT UNIT
Q701	2SC3311A(RS)	TRANSISTOR
	or 2SC536SPA(FG)	TRANSISTOR
	or 2SC1740S(RS)	TRANSISTOR
	or 2SC3199(GB)-TJK	TRANSISTOR
Q704	DTC124ES	TRANSISTOR
Q708	2SC3311A(RS)	TRANSISTOR
	or 2SC536SPA(FG)	TRANSISTOR
	or 2SC1740S(RS)	TRANSISTOR
	or 2SC3199(GB)-TJK	TRANSISTOR
Q709	DTC124ES	TRANSISTOR
D702	11ES2	DIODE
D703	LTZ-MR15	DIODE
D705	RD9.1ES-T1B2	ZENER DIODE
D706	RD5.6ES-T1B2	ZENER DIODE
D707	11ES2	DIODE
D710	1SS132	DIODE
D711	1SS132	DIODE
D715	1SS132	DIODE
D716	1SS132	DIODE

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
D717	1SS132	DIODE	
D771	SLR-55VC3F	LE DIODE,POWER	
D772	SLH-34MC3F	LE DIODE,SCENE	
D773	SLH-34MC3F	LE DIODE,SCENE	
D775	SLH-34MC3F	LE DIODE,SAP	
D777	SLH-34VC3F	LE DIODE,STEREO	
R701	QRD161J-333	RESISTOR	33KΩ,1/6W
R702	QRD161J-123	RESISTOR	12KΩ,1/6W
R703	QRD161J-104	RESISTOR	100KΩ,1/6W
R704	QRD161J-682	RESISTOR	6.8KΩ,1/6W
R705	QRD161J-103	RESISTOR	10KΩ,1/6W
R706	QRD161J-103	RESISTOR	10KΩ,1/6W
R707	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R708	QRD161J-224	RESISTOR	220KΩ,1/6W
R709	QRD161J-333	RESISTOR	33KΩ,1/6W
R710	QRD161J-333	RESISTOR	33KΩ,1/6W
R711	QRD161J-333	RESISTOR	33KΩ,1/6W
R712	QRD161J-333	RESISTOR	33KΩ,1/6W
R713	QRD161J-471	RESISTOR	470Ω,1/6W
R714	QRD161J-102	RESISTOR	1KΩ,1/6W
R715	QRD161J-102	RESISTOR	1KΩ,1/6W
R716	QRD161J-333	RESISTOR	33KΩ,1/6W
R717	QRD161J-105	RESISTOR	1MΩ,1/6W
R718	QRD161J-151	RESISTOR	150Ω,1/6W
R719	QRD161J-333	RESISTOR	33KΩ,1/6W
R721	QRD161J-471	RESISTOR	470Ω,1/6W
R722	QRD161J-271	RESISTOR	270Ω,1/6W
R724	QRD161J-102	RESISTOR	1KΩ,1/6W
R725	QRD161J-102	RESISTOR	1KΩ,1/6W
R726	QRD161J-102	RESISTOR	1KΩ,1/6W
R727	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R728	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R729	QRSA08J-104YN	RESISTOR	100KΩ,1/10W
R730	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R732	QRD161J-103	RESISTOR	10KΩ,1/6W
R733	QRD161J-103	RESISTOR	10KΩ,1/6W
R735	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R736	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R737	QRD161J-102	RESISTOR	1KΩ,1/6W
R739	QRD161J-104	RESISTOR	100KΩ,1/6W
R740	QRD161J-272	RESISTOR	2.7KΩ,1/6W
R780	QRD161J-271	RESISTOR	270Ω,1/6W
R781	QRD161J-103	RESISTOR	10KΩ,1/6W
RA701	QRB117J-104	NETWORK RESISTOR	100KΩ
	or QRB119J-104	NETWORK RESISTOR	100KΩ
RA702	QRB057J-104	RESISTOR ARRAY	
	or QRB059J-104	NETWORK RESISTOR	100KΩ,5W
RA703	QRB047J-332	NETWORK RESISTOR	3.3KΩ,4W
	or QRB049J-332	RESISTOR ARRAY	
RA704	QRB117J-104	NETWORK RESISTOR	100KΩ
	or QRB119J-104	NETWORK RESISTOR	100KΩ

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C701	QER60JM-107	E CAPACITOR	100μF,6.3V
C702	QEK60JM-226	E CAPACITOR	22μF,6.3V
C703	QEA40HZ-104A	E CAPACITOR (DOUBLE)	0.1F,5.5V
	or PU60676-104	E CAPACITOR	0.1F,5.5V
C704	QEK61HM-106	E CAPACITOR	10μF,50V
C705	QCBB1HJ-102	CAPACITOR	0.001μF,50V
C706	QCC11CJ-473	CAPACITOR	0.047μF,16V
C707	QCC11CJ-473	CAPACITOR	0.047μF,16V
C708	QER60JM-107	E CAPACITOR	100μF,6.3V
C709	QCBB1HJ-101	CAPACITOR	100PF,50V
C710	QCBB1HJ-101	CAPACITOR	100PF,50V
C711	QCBB1HJ-101	CAPACITOR	100PF,50V
C712	QEK61CM-106	E CAPACITOR	10μF,16V
C714	QAT3123-200	TRIMMER CAPACITOR,TIMER CLOCK	20PF
C715	QCT30CH-100	CAPACITOR	10PF
C717	QCC11CJ-473	CAPACITOR	0.047μF,16V
L701	PU48530-101J	COIL	100μH
⚠ X701	PU61013	CRYSTAL RESONATOR	
S701	PU60392-2-2	TACT SWITCH,POWER	
	or PU60975-2Z	TACT SWITCH	
	or PESW0525-02Z	TACT SWITCH	
S702	PU60392-2-2	TACT SWITCH,STOP/EJECT	
	or PU60975-2Z	TACT SWITCH	
	or PESW0525-02Z	TACT SWITCH	
S703	PU60392-2-2	TACT SWITCH,FF	
	or PU60975-2Z	TACT SWITCH	
	or PESW0525-02Z	TACT SWITCH	
S704	PU60392-2-2	TACT SWITCH,REW	
	or PU60975-2Z	TACT SWITCH	
	or PESW0525-02Z	TACT SWITCH	
S705	PU60392-2-2	TACT SWITCH,TV/VIDEO	
	or PU60975-2Z	TACT SWITCH	
	or PESW0525-02Z	TACT SWITCH	
S706	PU60392-2-2	TACT SWITCH,REC/ITR	
	or PU60975-2Z	TACT SWITCH	
	or PESW0525-02Z	TACT SWITCH	
S707	PU60392-2-2	TACT SWITCH,PLAY	
	or PU60975-2Z	TACT SWITCH	
	or PESW0525-02Z	TACT SWITCH	
S708	PU60392-2-2	TACT SWITCH,PAUSE	
	or PESW0525-02Z	TACT SWITCH	
	or PU60975-2Z	TACT SWITCH	
S724	PU60392-2-2	TACT SWITCH,TIMER	
	or PU60975-2Z	TACT SWITCH	
	or PESW0525-02Z	TACT SWITCH	
S727	PU60392-2-2	TACT SWITCH,SP/EP	
	or PU60975-2Z	TACT SWITCH	
	or PESW0525-02Z	TACT SWITCH	
S729	PU60392-2-2	TACT SWITCH,CH+	
	or PU60975-2Z	TACT SWITCH	
	or PESW0525-02Z	TACT SWITCH	
S730	PU60392-2-2	TACT SWITCH,CH-	
	or PU60975-2Z	TACT SWITCH	
	or PESW0525-02Z	TACT SWITCH	

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
FDP701	PEDP0039	FLUORESCENT DISPLAY PANEL
HD701	PQ33661	FDP HOLDER(L)
HD702	PQ33662	FDP HOLDER(R)
HD703	PQM30038-2-2	LED HOLDER
HD704	PQ40795-1-2	LED HOLDER,X4
CN701	PU61044-8	WIRE TRAP
	or PEMC0848-008	WIRE TRAP
CN702	PU61044-7	CONNECTOR
	or PEMC0848-007	CONNECTOR(WIRE TRAP)
CN703	PU61044-6	WIRE TRAP
	or PEMC0848-006	WIRE TRAP

****

UPPER DRUM BOARD <41>

PWB1	PDM3017	BOARD (UPPER DRUM)

****

PRE/REC AMP BOARD ASSEMBLY <43>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
PWBA	PB10560B	PRE/REC BOARD ASSEMBLY	
IC1	BA7743FS	IC	
IC201	AN3386NK-A	IC	
Q1	DTA114EU	TRANSISTOR	
⚠ Q2	2SA1036K	TRANSISTOR	
Q201	2SA1576(QRS)	TRANSISTOR	
Q202	2SC4081(QRS)	TRANSISTOR	
Q203	2SC4081(QRS)	TRANSISTOR	
Q204	DTC144WU	TRANSISTOR	
Q205	DTC144WU	TRANSISTOR	
Q206	DTC144WU	TRANSISTOR	
D1	1SS133	DIODE	
	or MA165	DIODE	
D2	DAN202U	DIODE	
D201	1SS133	DIODE	
	or MA165	DIODE	
D202	1SS133	DIODE	
	or MA165	DIODE	
D203	MA141K	DIODE	
	or DA114	DIODE	
D204	1SS133	DIODE	
	or MA165	DIODE	
D205	MA141A	DIODE	
	or DA112	DIODE	
R1	QRSA08J-224YN	RESISTOR	220KΩ,1/10W
⚠ R2	NRVA62D-120N	RESISTOR	12Ω,1/16W
R3	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R4	QRSA08J-122YN	RESISTOR	1.2KΩ,1/10W
R5	QRSA08J-151YN	RESISTOR	150Ω,1/10W
R6	QRSA08J-151YN	RESISTOR	150Ω,1/10W
R7	QRSA08J-122YN	RESISTOR	1.2KΩ,1/10W
R8	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
R9	QRSA08J-473YN	RESISTOR	47KΩ,1/10W
R12	QRSA08J-473YN	RESISTOR	47KΩ,1/10W
R16	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
R17	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R18	QRSA08J-912YN	RESISTOR	9.1KΩ,1/10W
R19	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
R20	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R21	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R201	QRSA08J-681YN	RESISTOR	680Ω,1/10W
R202	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
R203	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
R204	QRSA08J-391YN	RESISTOR	390Ω,1/10W
R205	QRSA08J-391YN	RESISTOR	390Ω,1/10W
R206	QRSA08J-821YN	RESISTOR	820Ω,1/10W
R207	QRSA08J-562YN	RESISTOR	5.6KΩ,1/10W
R208	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
R209	QRSA08J-821YN	RESISTOR	820Ω,1/10W
R210	QRSA08J-561YN	RESISTOR	560Ω,1/10W
R211	QRSA08J-561YN	RESISTOR	560Ω,1/10W
R212	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R213	QRSA08J-681YN	RESISTOR	680Ω,1/10W
R214	QRSA08J-122YN	RESISTOR	1.2KΩ,1/10W
R215	QRSA08J-562YN	RESISTOR	5.6KΩ,1/10W
R216	QRSA08J-153YN	RESISTOR	15KΩ,1/10W
R217	QRSA08J-562YN	RESISTOR	5.6KΩ,1/10W
R218	QRSA08J-562YN	RESISTOR	5.6KΩ,1/10W
R219	QRSA08J-334YN	RESISTOR	330KΩ,1/10W
R220	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R221	QRSA08J-393YN	RESISTOR	39KΩ,1/10W
R222	QRSA08J-153YN	RESISTOR	15KΩ,1/10W
R223	NRVA02D-4872AY	RESISTOR	48.7KΩ,1/10W
R224	QRSA08J-474YN	RESISTOR	470KΩ,1/10W
R225	QRSA08J-562YN	RESISTOR	5.6KΩ,1/10W
R226	QRSA08J-431YN	RESISTOR	430Ω,1/10W
R227	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R228	QRSA08J-331YN	RESISTOR	330Ω,1/10W
R229	QRSA08J-331YN	RESISTOR	330Ω,1/10W

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	R230	QRSA08J-104YN	RESISTOR	100KΩ,1/10W
	R231	QRSA08J-474YN	RESISTOR	470KΩ,1/10W
	R233	QRSA08J-153YN	RESISTOR	15KΩ,1/10W
	R234	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
	R235	QRS188J-122YN	RESISTOR	1.2KΩ,1/8W
	R237	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	C1	QCYA1EK-104	CAPACITOR	0.1μF,25V
	C2	QCSA1HJ-101	CAPACITOR	100PF,50V
	C3	QCFA1CZ-105	CAPACITOR	1μF,16V
	C4	QCSA1HJ-271	CAPACITOR	270PF,50V
	C5	QCSA1HJ-821	CAPACITOR	820PF,50V
	C6	QCSA1HJ-821	CAPACITOR	820PF,50V
	C7	QCSA1HJ-271	CAPACITOR	270PF,50V
	C8	QCFA1CZ-105	CAPACITOR	1μF,16V
	C9	QER60JM-107	E CAPACITOR	100μF,6.3V
	C10	QCYA1EK-103	CAPACITOR	0.01μF,25V
	C12	QCFA1CZ-224	CAPACITOR	0.22μF,16V
	C13	QCYA1EK-103	CAPACITOR	0.01μF,25V
	C14	QCYA1EK-103	CAPACITOR	0.01μF,25V
	C15	QCYA1EK-103	CAPACITOR	0.01μF,25V
	C16	QER60JM-107	E CAPACITOR	100μF,6.3V
	C17	QCYA1EK-103	CAPACITOR	0.01μF,25V
	C18	QCYA1EK-103	CAPACITOR	0.01μF,25V
	C201	QEK60JM-476	E CAPACITOR	47μF,6.3V
	C202	QCFA1HZ-103	CAPACITOR	0.01μF,50V
	C203	QCSA1HJ-430	CAPACITOR	43PF,50V
	C204	QCSA1HJ-5R0	CAPACITOR	5PF,50V
	C205	QCFA1HZ-103	CAPACITOR	0.01μF,50V
	C207	QCSA1HJ-430	CAPACITOR	43PF,50V
	C208	QCFA1HZ-103	CAPACITOR	0.01μF,50V
	C209	QCSA1HJ-101	CAPACITOR	100PF,50V
	C210	QCSA1HJ-271	CAPACITOR	270PF,50V
	C211	QCSA1HJ-680	CAPACITOR	68PF,50V
	C212	QCSA1HJ-101	CAPACITOR	100PF,50V
	C213	QCFA1EZ-104	CAPACITOR	0.1μF,25V
	C214	QCSA1HJ-391	CAPACITOR	390PF,50V
	C216	QER61CM-476	E CAPACITOR	47μF,16V
	C217	QFV11HJ-104	MM CAPACITOR	0.1μF,50V
	C218	QCFA1HZ-103	CAPACITOR	0.01μF,50V
	C219	QCFA1EZ-104	CAPACITOR	0.1μF,25V
	C220	QCSA1HJ-221	CAPACITOR	220PF,50V
	C221	QCSA1HJ-271	CAPACITOR	270PF,50V
	C222	QCSA1HJ-151	CAPACITOR	150PF,50V
	C223	QCSA1HJ-151	CAPACITOR	150PF,50V
	C224	QCY81EK-104	CAPACITOR	0.1μF,25V
	C225	QCY81EK-104	CAPACITOR	0.1μF,25V
	C226	QCFA1HZ-103	CAPACITOR	0.01μF,50V
	C227	QCFA1HZ-103	CAPACITOR	0.01μF,50V
	C228	QCY81EK-104	CAPACITOR	0.1μF,25V
	C229	QCY81EK-104	CAPACITOR	0.1μF,25V
	C230	QER61AM-685	E CAPACITOR	6.8μF,10V
	C231	QCF81EZ-224	CAPACITOR	0.22μF,25V
	C232	QCFA1HZ-103	CAPACITOR	0.01μF,50V
	C235	QCFA1HZ-103	CAPACITOR	0.01μF,50V
	C240	QCVB1CN-103	CAPACITOR	0.01μF,16V
	C241	QCSA1HJ-271	CAPACITOR	270PF,50V
	C242	QCSA1HJ-391	CAPACITOR	390PF,50V
	C243	QCFA1HZ-473	CAPACITOR	0.047μF,50V
	C244	QCSA1HJ-470	CAPACITOR	47PF,50V
⚠	L1	PU54223-101J	COIL	100μH
⚠	L2	PU54223-101J	COIL	100μH
	L201	PU59152-101K	COIL	100μH
	L203	PU59988-330J	COIL	33μH
	L204	PU59988-560J	COIL	56μH
	L205	PU59988-100J	COIL	10μH
	L206	PU59988-221J	COIL	220μH
	L207	PU59988-180J	COIL	18μH
	L208	PU54223-470K	COIL	47μH
	L209	PU59988-221JW	COIL	220μH
	L210	PU59988-150J	COIL	15μH
	SLD1	PQ33876-1-1	SHIELD CASE(1)	
	CN1	PU59555-103	CONNECTOR	
	CN201	PU59555-106	CONNECTOR	
	CN202	PU59555-110	CONNECTOR	
	CN203	PU59974-11	CONNECTOR	

****

DECK TERMINAL BOARD ASSEMBLY <51>

PWBA	PB10320E	DECK TERMINAL BOARD ASSEMBLY	
Q1	PU60625	END SENSOR	
R3	QRD161J-331	RESISTOR	330Ω,1/6W
R4	QRD161J-331	RESISTOR	330Ω,1/6W
R5	QRD161J-331	RESISTOR	330Ω,1/6W
R8	NTH5D473KB	THERMISTOR	
	or ERT-D2ZHK473S	NEGA THERMISTOR	
	or NTH5D473KA	RESISTOR	
C1	QCVB1CM-103	CAPACITOR	0.01μF,16V
PS1	PS5705HR	PH INTERRUPTER	
PS2	PS5705HR	PH INTERRUPTER	

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	CN1	PEMC0722-017	WIRE TRAP	
		or PEMC0753-017	WIRE TRAP	
	CN2	PU60642	CONNECTOR(7PIN)	
	CN3	PU60640	CONNECTOR(4PIN)	

****

LOARDING MDA BOARD ASSEMBLY <55>

	PWBA2	PB10320A2-01	LOADING MDA BOARD ASSEMBLY	
⚠	IC1	BA6418N	IC	
⚠		or XRA6418N	IC	
	C1	QETA1CM-336	E CAPACITOR	33μF,16V
	CN1	PU59555-104	CAP HOUSING	

****

CASSETTE HOUSING BOARD <56>

	PWB1	PB40061	CASSETTE HOUSING BOARD	
	Q2	PN268VI	PHOTO TRANSISTOR	
	D1	UZ5.1BSB	ZENER DIODE	
		or RD5.1ESB2	ZENER DIODE	
	R1	QRD162J-473	RESISTOR	47KΩ,1/6W
	R2	QRD182J-681	RESISTOR	680Ω,1/8W
	R3	QRD122J-102S	RESISTOR	1KΩ,1/2W
	C1	QCC11EJ-103	CAPACITOR	0.01μF,25V
	PHS3	PU60629	CASS.SENSOR	
	TH1	ERT-D2FHJ503S	THERMISTOR	
	CN2	PU60639	4PIN SOCKET	

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	

****

SERVO SUB BOARD ASSEMBLY <83>

	PWBA	PB10501A4-01	SERVO SUB BOARD ASSEMBLY	
	IC451	BA7039	IC	
		or XRA7039	IC	
	D451	1SS133	DIODE	
		or MA165	DIODE	
	R451	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R452	QRSA08J-152YN	RESISTOR	1.5KΩ,1/10W
	R453	QRSA08J-152YN	RESISTOR	1.5KΩ,1/10W
	R455	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
	R456	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R458	QRSA08J-124YN	RESISTOR	120KΩ,1/10W
	R459	QRSA08J-681YN	RESISTOR	680Ω,1/10W
	C451	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C452	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C453	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C454	QFV71HJ-104	TF CAPACITOR	0.1μF,50V
		or QFV11HJ-104	MM CAPACITOR	0.1μF,50V
	C455	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C456	QFV71HJ-104	TF CAPACITOR	0.1μF,50V
		or QFV11HJ-104	MM CAPACITOR	0.1μF,50V
	C457	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C458	QEK61AM-226	E CAPACITOR	22μF,10V
		or QETC1AM-226	E CAPACITOR	22μF,10V
	C459	QCYA1HK-103	CAPACITOR	0.01μF,50V
	L451	PU59152-270J	COIL	27μH
	CN442	PEMC0713-113	HOUSING	

SECTION 6
TECHNICAL INFORMATIONS

6.1 CPU PIN FUNCTIONS

1. Mechacon CPU pin function (IC601)

Pin No.	Symbol	I/O format	Label	IN/OUT	Contents
1	Vcc	–	Vcc	–	UNSW 5V
2	VREF	–	V. REF	–	UNSW 5V
3	DA	Analog	AFC DET	IN	TUNING DETECT DATA
4	PWM	PWM	FM IN	IN	AUTO TRACKING DATA INPUT
5	Port 6 4	N-ch OPEN DRAIN	THERM	IN	THERMIC CORRECTION (CAPSTAN BRAKE TIMING CONTROL)
6	3		LCM 1	OUT	FWD L REV H BRAKE H STOP L
7	2		LCM 2	OUT	H L H L
8	1		MODE SENS A	IN	MECHANISM MODE DETECT
9	0		MODE SENS B	IN	
10	AN 7	Analog	MODE SENS C	IN	
11	6		CASS SENS	IN	CASETTE INPUT/OUTPUT DETECT (DET ON: L)
12	5		CAP REV	OUT	CAPSTAN MOTOR CONTROL (FWD: H/REV: L)
13	4		DRUM CTL V	OUT	DRUM MOTOR CONTROL/CORRECTION
14	Port 4 3	N-ch OPEN DRAIN	CAP CTL V	OUT	CAPSTAN MOTOR CONTROL/CORRECTION
15	2		START SENS	IN	START SENSOR, LEADER TAPE DETECT (DET ON: L)
16	1		END SENS	IN	END SENSOR, TRAILER TAPE DETECT (DET ON: L)
17	0		DRUM FF	IN	DRUM MOTOR SPEED DETECT AND TIMING CONTROL
18	Port 3 7	N-ch OPEN DRAIN	CTL C/D	IN	CTL PULSE IN, MODE DETECT, BLANK TAPE DETECT
19	6		SP x 11	OUT	SELECTS MAXIMUM SPEED (SP x 11: H)
20	5		V PULSE	OUT	SPECIAL PB: ON
21	4		HEAD SELECT	OUT	EP(H)/SP(L)
22	3		R PAUSE	IN	REMOTE PAUSE CONTROL (PAUSE ON: L)
23	2		SYNC DET	IN	SYNC DETECT (DET ON: L), BLUE BACK CONTROL
24	1		SUP FG	IN	SUPPLY REEL ROTATION DETECT, TAPE REMAINING DATA
25	0		TU FG	IN	TAKE-UP REEL ROTATION DETECT, TAPE REMAINING DATA
26	INT-1		CAP FG	IN	MODE DETECT, TAPE REMAINING DATA
27	CN Vss		CN Vss	–	GND
28	$\overline{\text{RESET}}$		RESET	IN	RESET AT CONNECT VCR TO AC
29	X IN		X IN	IN	MAIN SYSTEM CLOCK
30	X OUT		X OUT	OUT	
31	ϕ		ϕ	–	NC
32			Vss	–	GND
33	Port 5 7	with Input Latch High impedance	AUTO/MAN/SLOW	OUT	HEAD SELECT (MAN: H, AUTO: M. SLOW: L)
34	6		NC	–	NC
35	5		EDIT	OUT	EDIT: L
36	4		RENTAL	OUT	RENTAL: L
37	3		PRESET	OUT	PRESET: L
38	2		SOFT	OUT	SOFT: L
39	1		LP	OUT	LP MODE: L
40	0		EE	OUT	EE MODE: L
41	Port 1 7	N-ch OPEN DRAIN	POWER ON/OFF	OUT	POWER CONTROL (P. ON: L)
42	6		P MUTE	OUT	PICTURE MUTE CONTROL (MUTE ON: L)
43	5		NC	–	NC
44	4		AUX	OUT	INPUT SIGNAL SELECT (AUX MODE: L)
45	3		REC START	OUT	REC START: L
46	2		REC	OUT	REC: L
47	1		HiFi DET	IN	FM AUDIO DETECT (NO SIGNAL: L)
48	0		A MUTE	OUT	AUDIO MUTE CONTROL (MUTE ON: L)
49	Port 0 7	N-ch OPEN DRAIN	HiFi REC START	OUT	HiFi REC START: L
50	6		H/N/M	OUT	AUDIO MONITOR SELECT (HiFi/MIX/NORM)
51	5		SPECIAL PB	OUT	SPECIAL PB MODE: L
52	4		LOCK	IN	TUNNING DATA OUTPUT CHECK
53	3		P DATA	OUT	PLL TUNNING DATA
54	2		S CLK/P CLK	OUT	DATA TRANSFER CLOCK
55	1		S DATA	OUT	SERVO IC CONTROL DATA (16 BIT)
56	0		SLOW/STILL	OUT	SLOW/STILL MODE: L
57	Port 2 7	C MOS	INDEX	IN/OUT	INDEX DATA (VISS) WRITE/DETECT ON: L
58	6		SP	OUT	SP MODE: L
59	5		SERVO	OUT	CAPSTAN MOTOR CONTROL (SERVO: H/MECHACON: L)
60	4		PAUSE	OUT	CAPSTAN MOTOR CONTROL (PAUSE: L/NORMAL: H)
61	3		R REV	OUT	RETAKE REV
62	2		TIMER CLOCK	IN	DATA TRANSFER CLOCK
63	1		TIMER DATA	IN/OUT	TIMER/MECHACON SERIAL DATA
64	0		REC SAFETY	IN	DETECTS ERASE PROTECT TAB (TAB ABSENT: H)

Table 6-1-1 Mechacon CPU pin function

2. Timer CPU pin function (IC701)

Pin No.	Symbol	Label	I/O	Contents
1	D11/FS4	Se	O	SEGMENT DISPLAY DATA OUTPUT
2	D12/FS3	Sd		
3	D13/FS2	Sc		
4	D14/FS1	Sb	O	SEGMENT DISPLAY DATA/KEY SCAN PULSE OUTPUT
5	D15/FS0	Sa		
6	R00/FD0	11G	O	COLUMN DISPLAY DATA
7	R01/FD1	10G		
8	R02/FD2	9G		
9	R03/FD3	8G		
10	R10/FD4	7G		
11	R11/FD5	6G		
12	R12/FD6	5G		
13	R13/FD7	4G		
14	R20/FD8	3G		
15	R21/FD9	2G		
16	R22/FD10	1G		
17	RF23/FD11	1 GRID END	I	LIGHTING DATA OUTPUT CHECK
18	RA0	$\overline{\text{TEST}}$	I	TEST POINT (CLOCK ADJUST)
19	RA1	POWER DOWN	I	POWER DOWN DETECT (ON: L)
20	R30/FD12	SCENE LED	O	LED CONTROL (LED ON : H)
21	R31/FD13	SCENE LED		
22	R32/FD14	POWER LED		
23	R33/FD15	POWER LED		
24	R50	NC	–	NC
25	R51	NC		
26	R52	NC		
27	R53	NC	–	NC
28	R60/INT0	1G END	I	COLUMN DISPLAY DATA
29	R61/INT2	CNT CLOCK	I	LINEAR TIME COUNTER DATA
30	R62/INT2	REMOTE	I/O	REMOTE DATA INPUT (A/B CODE)
31	R63/INT3	LINK		
32	Vcc	Vcc	–	for SYSTEM CTL (MAIN POWER)
33	R40/SCK	OS-CLK	O	MEMORY DATA/ON SCREEN DATA
34	R41/SI	CS	O	
35	R42/SO	OS-DATA	I/O	
36	R43/PWM	PROGRAM	O	BLUE BACK MODE : H
37	R70/BUZZ	SAP REC	O	LED CONTROL (LED ON: L)
38	R71	TIMER CLK	O	TM (Timer CPU/M-CTL CPU) bus 16-bit SERIAL DATA
39	R72	TIMER DATA IN	I	
40	R73	TIMER DATA OUT	O	
41	R80	$\overline{\text{OS RESET}}$	O	ON SCREEN IC CONTROL
42	R81	OS CE		
43	R90	KS 0	I	KEY SCAN DATA INPUT
44	R91	KS 1		
45	R92	KS 2		
46	R93	KS 3		
47	RESET	RESET	I	RESET AT CONNECT VCR TO AC
48	OSC 2	OSC 2	I	MAIN SYSTEM CLOCK (4.19 MHz)
49	OSC 1	OSC 1	O	
50	GND	GND	–	GND
51	CL 1	CL 1	I	
52	CL 2	NC	–	NC
53	TEST	+5	I	ALWAYS 5 V LEVEL
54	D0/FS15	Sp	O	SEGMENT DISPLAY DATA OUTPUT
55	D1/FS14	So	O	SEG MENT DISPLAY DATA/KEY SCAN PULSE OUTPUT
56	D2/FS13	Sn	O	SEGMENT DISPLAY DATA OUTPUT
57	D3/FS12	Sm		
58	D4/FS11	Sl		
59	D5/FS10	Sk		
60	D6/FS9	Sj		
61	D7/FS8	Si		
62	D8/FS7	Sh	O	SEGMENT DISPLAY DATA/KEY SCAN PULSE OUTPUT
63	D9/FS6	Sg		
64	D10/FS5	Sf		

Table 6-1-2 Timer CPU pin function